



## INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week  
Patience Personified  
For the Record  
The Machine Age vs.  
Male Freedom  
The Bundy Program  
Exactly  
What It's Like When  
Barbarians Move In  
Poker Story  
Another True Story

### Story of the Week

Few men there are who aren't called upon to make a speech at one time or another. And few men there are—no matter how often they speak in public—who don't "sweat it out" nervously before they get up and confront an audience.

Even the most seasoned of speakers lose track of time and place in that hellish hour before they are introduced, as witness:

Talking to himself and flipping the pages of a manuscript, Our Hero paid no attention whatsoever to his surroundings.

A friendly lady tapped him on the shoulder.

No response.

Next, she nudged him heavily and yelled into his left ear:

"You're the banquet speaker?"

"Huh? What, what? Er, yes. Yes, that I am."

"Thought so. Nervous, aren't you?"

"Who, me?"

"Yass, you. Otherwise, you wouldn't be rehearsing in the Ladies Powder Room."

### Patience Personified

Frigidaire Division  
General Motors Corporation  
Dayton, Ohio

Editor:

Ed Carmen, our manager in France, sent us a translation of a most unusual letter he received from a prospect. I thought you might get a kick out of it so am sending it along.

The tone of the letter indicated that this fellow thinks that 63 is a ripe old age. We had a request similar to this some time ago from a fellow in California, but he was 86. This would indicate that there is something to this claim that Californians live longer than other people.

The letter reads as follows:

"I have been waiting for a Frigidaire 138 F for a number of years and I was most happy when you did let me know that one would be delivered to me in September 1948.

"I sincerely regret not to have heard from you about it since then. When do you think you will be able to deliver one to me? I am 63 years of age and I wish I could enjoy a Frigidaire. Will you be so kind as to give me this pleasure to enjoy for the rest of my life? I should be most grateful to you and I would not forget to mention in my last will that the Frigidaire be returned to you after I am dead."

MAURICE JAKOBI

### For the Record

During the month of October, three events of significance in the history of the refrigeration business took place at Dayton.

1. The twenty-seventh anniversary of the first Frigidaire refrigerator built in Dayton.

2. More Frigidaire refrigerators

(Concluded on Page 7, Column 1)

## Ice Cream Cabinet Mfrs. Form Product Section of ACRMA

CHICAGO—Following a meeting of manufacturers of ice cream cabinets at the Palmer House here Dec. 13, announcement was made that the industry will carry on its trade association work as a product-section of the Air Conditioning & Refrigerating Machinery Association.

According to the statement of its first chairman, Edward R. Legg, president of Refrigeration Corp. of America, major objectives of this newly-organized trade group will be in the areas of statistical and market research, improvement of product design, and expansion of the product's field use.

H. L. Schaefer, president of Schaefer, Inc., was elected vice chairman of the product-section. Legg and Schaefer, together with T. E. Hoyer of Savage Arms Corp., constitute the product-section's executive committee.

Member companies of the Ice Cream Cabinet Section of ACRMA are Ace Cabinet Corp.; Anheuser-Busch, Inc.; Frigidaire Div., General Motors Corp.; Nash-Kelvinator Corp.; C. Nelson Mfg. Co.; Refrigeration Corp. of America; Savage Arms Corp.; and Schaefer, Inc.

Several other leading manufacturers of ice cream cabinets are expected to become affiliated with the ACRMA product-section.

## NARDA Will Meet In Chicago Jan. 9-11

CHICAGO—More than 40 consultants will take part in 10 panel sessions during the annual meeting at the Sheraton hotel here Jan. 9-11 of the National Appliance & Radio Dealers Association (formerly the National Electric Retailers Association).

Panel subjects include the dealer's 1949 sales effort, installation problems, radio-television, manufacturer-distributor-dealer relations, business efficiency, small appliances, builder sales, dealer franchise, expansion of NARDA, and manufacturer-distributor service to dealers.

On Jan. 12, the group's board of directors will meet to elect officers and make plans for 1949.

Following is part of the program (Concluded on Back Page, Column 1)

## Stoddard Models Have 3 Temp Zones

MASON CITY, Iowa—Two new model household refrigerators of approximately 9-cu. ft. and 13-cu. ft. capacities respectively have been announced for 1949 by the Stoddard Mfg. Co. here.

Stoddard previously has manufactured only a 4-cu. ft. table-top refrigerator and an 8-cu. ft. model in addition to its two home freezer models.

The new deluxe Lockrator refrigerators maintain three different temperature zones and feature exclusive "ceiling cooling" which gives indirect high humidity cooling to the food compartment proper. Ceiling cooling is said to make for high efficiency under heavy-duty applications and extremely hot climates.

Other highlights include a full-length door, and narrower, deeper construction to accommodate kitchens where space is limited. All 1949 models will be equipped with flat tops for more modern appearance and utility, according to the manufacturer.

A 0° F. freezer extends across the

(Concluded on Page 25, Column 4)

## NEMA Unit Sales Pass 3 Million For 9 Months

NEW YORK CITY—Sales of household refrigerators by companies reporting to the household refrigerator section of the National Electrical Manufacturers Association passed the 3,000,000 unit mark in September, the association has reported.

With from 11 to 14 companies reporting, the total for the nine months period was 3,040,576. Of these, 2,890,107 were sold in the United States. A total of 799 were sold in Canada and 149,670 in all other foreign countries.

September sales, with the Sanitary Refrigerator Co. reporting for the first time, rose 21% over August, but were still somewhat below July. Fourteen manufacturers sold 358,524 units in September.

(Concluded on Page 25, Column 2)

## 13-Cu. Ft. Howard Refrigerator Bows

HATBORO, Pa.—The Howard Refrigerator Co. here has announced a new and complete 1949 refrigerator line which features a 13-cu. ft., two-door, two-temperature combination refrigerator.

The remainder of the line includes both electric and ice beverage coolers in capacities ranging from five cases to 30 cases.

The model 1302 refrigerator is an upright unit with the top section being a 3-cu. ft. frozen food locker and the lower section a 10-cu. ft. normal temperature refrigerator.

The frozen food locker contains sufficient ice cube trays to freeze 10 lbs. of ice. The normal temperature compartment contains two porcelain vegetable crispers.

(See photo on page 28)

## Ward Refrigerator Prices Drop \$5-\$15

CHICAGO—Price reductions of from \$5 to \$15 on six Ward refrigerator models, effective in the company's retail stores, have been announced by Montgomery Ward & Co.

The reductions follow similar price drops made effective by Sears, Roebuck & Co. a few weeks ago. The Ward reductions are effective immediately in all retail stores except in Chicago, where catalog prices prevail.

The new prices are as follows: 7.5-cu. ft. Standard—\$199.95; 7.5-cu. ft. Deluxe—\$224.95; 7.5-cu. ft. Supreme—\$249.95; 9.5-cu. ft. Deluxe—\$259.95; 9.5-cu. ft. Supreme—\$289.95; and the 9.5-cu. ft. with freezer locker, \$299.95.

## Papers, Exhibits Set for ASHVE Meeting, Heating & Ventilating Show January 24

CHICAGO—The fifty-fifth annual meeting of the American Society of Heating and Ventilating Engineers and the Ninth International Heating and Ventilating Exposition are both scheduled for Chicago the week of Jan. 24, 1949.

The exposition, at which more than 300 firms will display their products and services, opens at 2 p.m. Monday, Jan. 24, at the International Amphitheatre and will run daily through Friday from 12 noon to 10 p.m.

Nearly 2,000 members and guests are expected at the ASHVE meetings, which will officially get underway the same Monday morning at the Stevens hotel and run through

## Reg. W Would Permit Rent To Apply on Purchase

WASHINGTON D. C.—Latest interpretations of Regulation W—Consumer Installment Credit—issued recently by the board of governors of the Federal Reserve System state that:

1. Automatic electric table model roasters and cookers are covered by the regulation if their cash price is \$50 or more.

2. The \$5 minimum monthly payment requirements on appliances does not prevent the last instalment from being less than \$5.

3. If the customer signs a written rental agreement on a listed appliance with no obligation to purchase and decides to buy the unit before her rental period is up, the amount of the rental can be deducted from the selling price if she takes the unit she already has. If she gets a different unit, however, the amount of the rental cannot be deducted.

The text of the interpretation on rental agreements follows:

"Rental-purchase arrangements. In order to increase the sale of a certain type of listed article, a company proposes to rent and deliver to interested persons for use in their homes, such articles for one month at a charge of \$5 under a written rental agreement which contains no obligation or option for the purchase of the article.

"However, before the expiration of the 30-day period, either there would be a sale of an article of the type delivered, or the article that was delivered would be returned to, and reconditioned by the company for sale elsewhere.

(Concluded on Page 4, Column 5)

## Blake Thomas Heads REMA Lowside Section

WASHINGTON, D. C.—H. Blake Thomas, general sales manager of McQuay, Inc., has been elected chairman of the Lowside Equipment Product Section of the Refrigeration Manufacturers Association. He will serve as chairman of the Section until April, 1950.

Twenty-three firms are represented in this group. The Section has made plans to gather and distribute monthly sales figures on low-side equipment through the offices of Rema, with all firms in the product section reporting.

A committee consisting of V. C. Knight, Betz Corp., R. M. Kritzer, Peerless of America, Inc., and H. Blake Thomas, McQuay, Inc., was appointed to draw up the necessary reporting forms covering all products of major interest to the subscribing members and to put the reporting system into operation as soon as possible.

## Kelvinator '49 Line Includes 2-Temp Model

New Refrigerator-Freezer,  
Two 8.6-Cu. Ft. Standard  
Models Are Introduced

DETROIT—Kelvinator Div. of Nash-Kelvinator Corp. is introducing this week three new 1949 refrigerator models, including a two-door combination refrigerator-freezer, and two 8.6-cu. ft. refrigerators.

Kelvinator's model TM two-door combination is a brand-new addition to the company's full-length-door "Masterpiece" series, while the new 8.6-cu. ft. models replace the 7-cu. ft. size.

"Kelvinator's 1949 models reflect the continuing public demand for more food storage space inside the refrigerator without taking up more kitchen space," said Charles T. Lawson, vice president in charge of Kelvinator sales.

Lawson said the new RS and RD 8.6-cu. ft. refrigerators are only 1 in. taller than former 7-cu. ft. models, and actually take up less room in width and depth. The two-door TM, he pointed out, occupies the same kitchen floor space as a conventional unit, and stands only a trifle higher.

Suggested list prices on 1949 Kelvinator refrigerators (which include 5-year protection plan):

CR	\$219.95
RS	249.95
RD	279.95
CM	319.95
FM	349.95
MM	399.95
TM	459.95

Styling on Kelvinator's two 8.6-cu. ft. models matches the handsome exteriors of the Masterpiece series.

Model RS has a side-mounted frozen food chest with a capacity of 25 lbs. of packaged frozen foods and ice cubes, an aluminum meat tray, and a sliding 12-qt. vegetable crisper. Model RD has a capacity of 30 lbs. of frozen food and ice cubes in its

(Concluded on Page 4, Column 1)

## IN THIS ISSUE

Is it profitable to keep an appliance store open in the evenings? Some ideas on this subject are aired on page 18.

A new unit air conditioning system designed to permit accurate control of temperature and humidity in multi-room, multi-story buildings without the use of ducts is described on page 22.

Are refrigeration equipment manufacturers doing all they can to seal their products against moisture? One reader says no. His views are on page 23.

When a check of his ledger showed a Denver dealer just how weak his home freezer sales really were, he decided that something had to be done. What he did is reported on page 19.

The nationwide water shortage has gone beyond the joking stage. One manufacturer introduces his answer—a combination air and water-cooled condenser. Story on page 11.

The same approach won't sell all customers. An expert—on page 2—tells how to vary your approach according to the prospect's personality.

Departments: What's New, pages 16-17 . . . World Trade News, page 20 . . . Patents, page 26 . . . Key to Air Conditioning, page 24 . . . Paul Reed, page 27 . . . Editorial, page 12.



## Here's the Way an Expert Would Hire, Train His Specialty Salesmen To Sell

CHICAGO—Is there a scientific, thought-out approach to the hiring and training of specialty salesmen?

Such approaches were described to members of the National Association of Refrigeration Contractors at their recent annual convention here by B. Franklin Bills of Bills & Associates, sales consultants, noted as a star salesman in his own right, and well-known as a teacher of sales methods.

So, what about hiring salesmen? Bills says, don't do it in the usual way. Avoid—

Employment agencies.  
Newspaper advertisements.  
People looking for a "job."

Instead, he says, try to find a competent man who is now doing a good job. Maybe he might be a serviceman in your own organization, but be sure he's the right type—one who's interested not so much in how the product works, but "what it does."

"Try to make it known that you are looking for good men, and that you have fine opportunities for them," Bills said. "If you can, make talks before various groups where you can get this thought across in some fashion."

In training salesmen and teaching sales tactics, Bills declared that it is important to make distinctions in approaches or tactics according to the type of product being sold and the circumstances under which it is being purchased.

There is the type that will involve

"sales sensations" rather than "sales arguments." Room air conditioners would come into this category. Selling here, is a matter of getting a "feel" for the product into the presentation. Use pictures and testimonials on sales already made—demonstrate that people are "happy" with your product.

After you've created this "sensation" or "feel" for the product, then come along with the underlying reasons for the prospect's need of it, make your analysis, and present the proof.

The "engineering type" sales tactics are something different, a principal distinction being that the product is generally indispensable to the prospect's business.

In selling refrigeration equipment for a restaurant, for example, the steps are relatively obvious:

1. You determine the prospect's requirements.

2. The salesman states his case, specifies the product he is selling.

3. He goes into the close.

Of prime importance is the matter of getting the customer to start "buying" talk first, rather than the salesman getting into his selling talk, Bills cautioned.

Best means of doing this, he said, is to use the interrogatory or exploratory approach, asking the kind of questions that will get the prospect into the "buying" talk sequence.

Dramatize the "comfort" in air conditioning—remind the prospect of how he has sought comfort in air

conditioned shows and restaurants—be sure that your own salesroom is air conditioned, Bills pointed out.

One thing salesmen must be taught is that prospects are of different "types," and that the approach must be varied by the type. Most prospects will fall into these types:

Normal  
Scientific  
Intellectual  
Sophisticate  
Emotional

Classifying the prospect by type is one of the first important steps that a salesman must take, Bills declared.

The "close," wherein the salesman asks for the order, is all-important in selling. Bills described the proper approach to the close as "checking for the green or red light."

How do you check for the "green or red light?" Here's a couple of suggestions by Bills:

1. Use the "any more questions?" lead-up to the order, or—

2. Reach for the telephone to check with the office about the details (this is assuming assent).

If the prospect stops you in either of these approaches, Bills advice is to pass the interruption by lightly and get around to the closing moves later.

If the prospect has a serious objection, Bills advises either to laugh it off or go along with, or state "all right, except for that one objection, we are in agreement." This is isolating the objection, and with just that one point confronting him, a good salesman should be able to turn it into the point on which the sale is made, Bills declares.

"Consultation selling" is the currently accepted fashion in today's selling methods, says Bills. You "counsel with" the prospect, rather than "sell to" him.

## Status of Industry Wholesalers In Oct.

Kind of Business and Geographic Division	SALES			No. of Firms Re- porting	Reported Dollar Sales (add 000)
	Per Cent Change				
	Oct., 1948 from Oct., 1947	Oct., 1948 from Sept., 1948	10 mos., 1948 from 10 mos. 1947		
	Oct., 1948 from Oct., 1947	Oct., 1948 from Sept., 1948	10 mos., 1948 from 10 mos. 1947		
Appliance and specialties					
wholesalers .....	— 6	+ 2	+10	92	13,474
New England .....	—15	—11	+13	7	701
Middle Atlantic .....	— 1	+ 7	+13	17	3,038
East North Central .....	—10	—10	+11	15	1,711
West North Central .....	+ 6	— 2	+10	11	1,316
South Atlantic .....	— 4	+10	+10	17	3,257
Mountain .....	— 2	+ 2	+23	7	1,004
Pacific .....	—18	+ 6	+ 3	12	1,381
Refrigeration equipment,					
parts (commercial) .....	—22	— 9	— 7	24	801
Middle Atlantic .....	—32	—22	— 9	4	118
East North Central .....	—25	—26	+10	4	61
South Atlantic .....	— 8	— 8	— 7	5	220
Pacific .....	—20	—15	—14	5	147

Kind of Business and Geographic Division	PERCENTAGE CHANGE			Firms Reporting	Dollar Value (add 000)
	Oct., 1947	Sept., 1948	Oct., 1948		
Appliance and specialties					
wholesalers .....	+28	+11	69		13,822
New England .....	*	*	*		*
Middle Atlantic .....	+35	+23	6		3,061
East North Central .....	+41	0	11		1,370
West North Central .....	+36	+16	9		1,492
South Atlantic .....	+51	+6	16		2,458
Mountain .....	+24	+10	6		1,035
Pacific .....	+8	+6	11		1,579
Refrigeration equipment,					
parts (commercial) .....	+3	-1	18		1,854
Middle Atlantic .....	*	*	*		*
East North Central .....	*	*	*		*
South Atlantic .....	+14	+3	5		509
Pacific .....	-3	-3	4		444

\*Insufficient data to show separately.

### Sales Drop, Inventory Up, Wholesalers Report

WASHINGTON, D. C.—October sales by appliance and specialty wholesalers were down 6% from October, 1947, while sales by commercial refrigeration parts and equipment wholesalers were down 22%, the U. S. Department of Commerce has reported.

Sales of all wholesalers—3,028 reporting—were off 5% from October of last year. This is the first month since September, 1945 to show a year-to-year decrease in dollar sales.

Tabular figures on sales and inventories for October for the appliance and commercial refrigeration wholesalers appear above.

### Reg. W Effect Shows In October Credit Figures

WASHINGTON, D. C.—Thanks to Regulation W, consumers appear to have shied away from instalment credit during October—they switched to charge accounts.

The Federal Reserve Board, in reporting on credit outstanding for the first full month since the regulation became effective, noted that instalment credit had increased only \$30 million over September. This compared with a \$184 million rise from August to September, and a \$225 million rise from July to August.

On the other hand, charge accounts rose \$230 million from September to October as compared to \$111 million from August to September and a drop of \$54 million from July to August.

The board admitted that charge account credit usually rises in October. However that type of credit is 14% higher this October than last.

### Court Restrains Supermarket From Giving Appliances

ST. PAUL—Whether a St. Paul supermarket will be permitted to give away \$2,000 in electrical appliances, including a Westinghouse refrigerator and Laundromat, must be decided in court here.

A restraining order was served on the Cut Price supermarket to prevent it from giving the appliances away in connection with its grand opening. Ramsey county district court issued the order on petition of the attorney general's office, which charged the plan violated the 1947 fair trade practices law.

### Alleged High Pressuring On Repair Jobs May Cost Heating Firm Its License

DETROIT—Accused of tearing down furnaces needing repairs and then high pressuring the customer into purchasing a new furnace, the Advanced Heating & Air Conditioning Co. here is faced with the possibility of losing its license.

The Michigan Corporation & Securities Commission is currently taking the firm's case under consideration. Charges of fraud and misrepresentation against the firm were brought by the local Better Business Bureau.

The commission has already heard 18 Detroiters testify that agents of the company had had their furnaces dismantled for slight repairs and then told them they needed new units because these were beyond repair.

Kenneth Francis, sales manager for the firm and one of the defendants, defended his company's actions by asserting that the furnaces declared beyond repair were "bad furnaces, dangerous to use."

"There have been a great number of asphyxiation cases by coal gas and illuminating gas this winter. When we warned people of faulty furnaces, we believed them to be dangerous. It was not merely to sell a furnace," he stated.

Whether or not these warnings were sincere is a "matter of opinion," according to defendants' counsel, who added that the action already taken against the company has caused irreparable damage.

Defendants besides Francis are John Flannery, president of Advanced, and Mrs. Florence Weickenand, secretary-treasurer.

W. H. Carrico of the Detroit Better Business Bureau said that he had warned the firm several times about its methods and added that the warnings had been ignored. He contended that the Advanced firm was not the only one following these alleged tactics.

### York Declares Quarterly, Semi-Annual Dividends

YORK, Pa.—The Board of Directors of York Corp., declared the regular quarterly dividend of 56½ cents a share on the 4½% cumulative preferred stock, and a semi-annual dividend of 37½ cents a share on the common stock, payable Jan. 3, 1949, to stockholders of record on Dec. 17, 1948, a company report indicates.

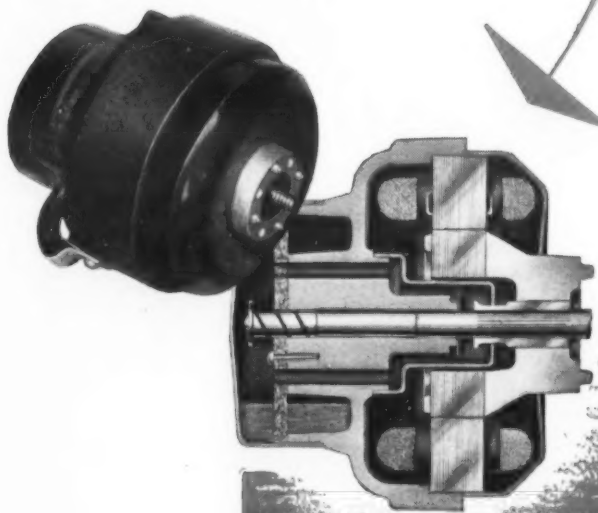
heat it!  
cool it!  
keep it moving!

### You can control and direct air flow with G-E unit-bearing motors on your fans.

Because they are designed primarily for fan service, G-E unit-bearing motors have the characteristics you want—quiet operation, dependable performance, minimum maintenance, and low cost.

The unique single bearing construction gives you permanent lubrication from a lifetime, sealed oil reservoir. Oil is force-fed along the shaft to flood the bearing constantly for quiet operation. Bearing and stator housing are machined in one set-up for accurate and permanent alignment, dependable operation.

G-E unit-bearing motors are easily adapted to your mountings, use simple, stamped-metal fan blades available from the factory. For immediate delivery of these sturdy, dependable motors, call your nearest G-E sales representative. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.



GENERAL ELECTRIC



## Handling of Frozen Foods Boosts Sales of Canned, Fresh Items, Grocer Says

LINCOLN, Neb.—The handling of frozen foods has helped to sell more fresh and canned fruits and vegetables rather than retarding such sales, reports Karl P. Meyer, proprietor of the Freadrich Brothers supermarkets here and president of the Lincoln Food Retailers Association.

His stores were among the first in the midwest to promote frozen foods, and the first in Lincoln to install modern reach-in self-service cases for vending frozen foods, along with refrigerated reach-in cases for fresh vegetables.

People buy frozen foods because they like them, Meyer pointed out, and the store which doesn't meet this demand merely loses the business to competitors who do carry frozen foods.

In his own case, he added, store traffic has been greatly increased during the past decade by constant adding of modern reach-in refrigerated cases, causing fresh and canned vegetable and fruit sales to jump, in addition to the sizeable frozen food business which has shown a large increase in volume every year.

He also successfully promotes frozen fruits and vegetable to patrons who come in to purchase meat for their lockers.

### Freezer's Chief Appeal Is Economy Angle, Says Inventor-Distributor

INDIANAPOLIS—Robert C. Webber, inventor and distributor of the Webber home and farm freezer, 2740 Madison Ave., has gone to the farmer with a set of facts to convince him that the freezer unit will make money for the farm family.

Instead of extolling the virtues of the Webber, he tells the story of what the freezer will do for the purchaser.

Webber says: "Now you can eliminate loss of offal, such as brain, cheek meat, liver, and heart. You can save bones for delicious soup stock. You can avoid the expense and labor of salting down your meat. In short, you can get 100% efficiency and value out of your butchered animal, at an actual saving. You can do all of this with a Webber freezer."

He asks the farmer to come in and have him demonstrate "how my freezer can work for you—how it can actually pay for itself in a short time."

Another merchandising policy used by Webber that is paying off in extra sales, is his 9 p.m. closing hour every day except Sunday. This gives the farmer time to complete his farm chores and then run into town to see the Webber freezer at his leisure—and to the profit of Webber.

## Regulation W Cited by a Few Dealers As Twin Cities Appliance Sales Drop

MINNEAPOLIS—Major electrical appliance sales have dropped sharply in the Twin Cities, according to a recent survey and statements from the Twin City Appliance Dealers Association. Regulation W was given by a few as a contributing factor, but the majority felt a general downward trend in consumer buying was the major cause.

Many dealers are finding much of the public has been erroneously informed or is assuming the down payment on appliances under W is one third rather than the required 20%. When they discover it is only 20%, a dealer spokesman said, they are pleased. Publicity given in the automobile industry which requires the one third down is believed to be contributing to this false impression of appliance down payments.

Generally poor holiday period shopping in refrigeration, radio, ranges, and washing machines is reported

with a slight upward surge in television set purchases due to the highly competitive pattern now being set.

Some dealers feel that because items not under Regulation W are also being bypassed by consumers, major blame for this unseasonal recession cannot be placed on credit restrictions.

An anticipated late Christmas buying spree was believed to be in the offing due to the fact customers feel they can now wait until the last minute to buy most items.

Another factor suggested by retailers was the election. Uncertainties as to price control may be causing some to hold off their purchases. Business was notably off the two weeks immediately following the election.

In general, appliance dealers here say they like Regulation W as it provides a cleaner credit situation and far fewer repossessions must be made.

A recent meeting of appliance dealers here brought out the fact that dealers must get out and sell service and appliances harder than ever before if business volume is to remain at high levels, according to Charles H. Stephenson, executive secretary of the dealer groups.

Independent dealers here are said to be embarking on a "selling" program to push appliance sales. They are basing their increased activity on more and more call backs from previous sales and follow ups on inquiries and service calls. Dealers find they increase appliance sales when they go after business as a result of service calls, it was pointed out.

### Pacific Cold Storage Sold

BOISE, Ida.—Pacific Cold Storage, here, for 11 years owned and operated by H. M. Buhl, was recently purchased by Thomas J. Krigbaum and Harold A. Craig.

The new owners take over a plant that has been steadily improved and enlarged during the past 11 years. It now includes 1,100 private lockers in addition to other cold storage facilities.

## Bulletin Reports Progress Of Gov't Research Into Pre-Cooked Frozen Meals

WASHINGTON, D. C.—Progress of the government's research on pre-cooked frozen meals is described in a report now available through the Office of Technical Services, Department of Commerce.

The summary, which is said to be of interest to airlines, eating establishments, and firms interested in introducing frozen pre-cooked meals to the home market, was prepared by the U. S. Air Force to survey developments in in-flight feeding.

It lists a number of publications now available on pre-cooked frozen meals; gives descriptions of typical meals now available or undergoing test; and indicates types of paper containers being investigated.

The government is now undertaking research in frozen foods through the Quartermaster Food and Container Institute in Chicago and the Naval Air Transport service.

# Deepfreeze

DIVISION, MOTOR PRODUCTS CORPORATION

TRADE-MARK REG. U. S. PAT. OFF.

## ...opens new dealer opportunities with Frostair!



Last month we announced the acquisition of Frostair, the two-in-one refrigerator.

Following this announcement, we have received many inquiries from distributors and dealers. All express enthusiasm for the product and for the profit possibilities under the Deepfreeze home freezer banner.

For others who are interested, we present these facts:

Frostair is America's only duplex refrigerator—the one and only true combination refrigerator and home freezer in one cabinet... the only one that is powered by two separate compressors for refrigerator and freezer.

To you as a dealer, Frostair offers a big opportunity in both the refrigerator and the home freezer fields.

Frostair gives you an exclusive sales story to tell, dramatic features to demonstrate. And that means sales—easier sales, more sales.

If you want to sell Frostair and identify yourself with the great Deepfreeze refrigeration program in your community, we suggest you act now—today. See your nearest Frostair distributor or write us direct for details.

DEEPFREEZE DIVISION, Dept. AC-128  
Motor Products Corporation, North Chicago, Illinois

**Frostair  
and only  
Frostair**  
  
offers all these  
outstanding  
features

#### REFRIGERATION COMPARTMENT

- Capacity, 7 cubic feet
- No old-fashioned coil box
- Cold comes from the walls
- Controlled humidity retains moisture; foods can't dry out
- Cold is motionless, no transfer of odors
- Over 14 square feet of shelf space
- Ninety large ice cubes

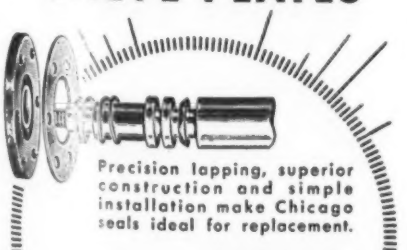
#### HOME FREEZER COMPARTMENT

- Capacity, 3½ cubic feet
- Holds two bushels of foods
- Twin bins for ease of storage
- Bins slide out like drawers of filing cabinet
- Separate doors
- No need to open freezer when using refrigerator
- Positive temperature gauge

Visit our exhibit in Rooms 1447-48, The Merchandise Mart, Chicago, during the Chicago Home Furnishings Market, January 3-15, 1949, and during the National Housewares and Major Appliances Show, January 13-20, 1949.

## PLAYSAFE

USE  
CHICAGO SEALS  
and  
VALVE PLATES



Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.

Only Chicago valve plates have replaceable seals.



PERFECT BALANCE



CHICAGO SEAL CO.  
332 S. MYNNE AVE.  
CHICAGO 22, ILL.



New Models Specifications

Feature	RS	RD	CM	FM	MM	TM
Shelf area (sq. ft.)	15.8	16.6	16.5	14.8	15.6	15.8
Net capacity (cu. ft.)	8.6	8.6	10.5	10.0	10.0	11.0
Freezer capacity (lbs.)	25	30	40	50	50	80
Ice cube trays (No.)	4	4	4	4	4	4
Net Cold Mist Freshener capacity (cu. ft.)					2.3	2.3
Crisper capacity (qts.)			12	20		
Over-all dimensions: Width (in.)	31½			31½		31½
Depth (in.)	26½			27½		26½
Height (in.)	58			60½		64½
Interior dimensions: Width (in.)	25½			25½		25½
(TM is lower storage compartment only)						
Depth (in.)	16½			16½		16½
Height (in.)	38			52½		42½
Freezer Chest Dim.: Width (in.)						23½
Depth (in.)						13½
Height (in.)						10½
Shipping weight (approx.)	330	325	355	355	365	390
Full length door (TM also has separate door to frozen food compartment)			X	X	X	X
Full width (w) or side mounted (s) frozen food compartment	S	S	S	W	W	W

Kelvinator Line--

(Concluded from Page 1, Column 5) side-mounted freezer chest, a plastic meat chest and cover, a removable half-shelf to accommodate odd-sized items, and two 12-qt. sliding vegetable crispers. Both models are 31½ in. wide, 26½ in. deep, and 58 in. high. The model TM introduces the exclusive Kelvinator "cold clear to the floor" feature in a two-door combination for the first time, the company claims. It has a capacity of 9.5 cu. ft. in its freezer and shelf area combined, plus an additional 1.5 cu. ft. in the refrigerated fruit-freshener compartment at the bottom of the cabinet.

The full-width frozen food chest stores up to 80 lbs. of packaged frozen foods and ice cubes at near zero temperatures. It has its own separate door and is completely insulated from the general food-storage compartment below. It provides long-period storage services comparable to those of a separate home freezer. Each compartment has its own independent set of refrigerating coils. In addition to its large freezer chest, the TM combination model includes an unusually large refrigerator compartment. It is moderately moist-cold in the big general storage compartment, and supermoist cold in the glass enclosed "Cold Mist" freshener and tilt-out fruit freshener. The TM is 31½ in. wide, 26½ in. deep, and 64½ in. high.

Looking Into the Kelvinator Line for '49



Interior of Model TM



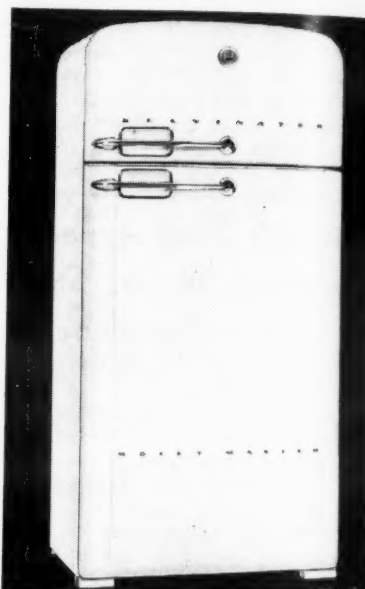
Interior of Model RD

ACRMA Announces Election of Heuser As Treasurer for '49

WASHINGTON, D. C.—G. A. Heuser, president of Henry Vogt Machine Co., Louisville, Ky., has been elected treasurer of the Air Conditioning & Refrigerating Machinery Association, ACRMA headquarters here announced.

The Vogt company has been a producer of large industrial refrigeration equipment for almost half a century, and Heuser has been associated with the firm for a greater portion of that period. He assumed the company presidency following the death of its founder, Henry Vogt, in 1937.

In addition to his activities in connection with the refrigeration industry, Heuser is president of the National Realty Co. and a director of Merchants Ice & Cold Storage Co., the Louisville Safety Council, the Louisville Board of Trade, and the Associated Industries of Kentucky. He is also a member of the Industrial Advisory Committee of the Federal Reserve Bank of St. Louis.



Exterior of Model TM

Reg. W Clarified--

(Concluded from Page 1, Column 4) "In the event of a completed sale, the lessee-purchaser could either retain the article previously delivered to him or receive a new article. "If the former should occur, the regular retail purchase price would be reduced by \$5; but if the latter occurs, no cut would be made.

"The reduced purchase price or the regular purchase price, as the case may be, would be treated as the selling price subject to the payment provisions of Part 222. "The absence from the written rental agreement of an obligation or option to buy would not be deemed to be of controlling significance in circumstances such as these.

"Viewed in their entirety, the transactions in question look toward the completion of a sale and, should comply with Regulation W either as an ordinary extension of instalment credit or as a delivery in anticipation of an instalment sale."

Crosley Div. Holds Distributor Convention

CINCINNATI—More than 300 representatives of the distributor organization of the Crosley Division, Avco Mfg. Corp., from all parts of the nation, met here for a two-day distributor convention Dec. 16 and 17.

C. W. Kirby, domestic sales manager, was to welcome distributors and W. A. Blees, vice president and general sales manager, was to deliver the keynote address.

J. W. Craig, vice president and general manager, was to discuss "Business for 1949" on Friday.

Other sessions included a presentation of Crosley's 1949 line of products and addresses by Crosley sales promotion, production, training, engineering, advertising, and financial executives.

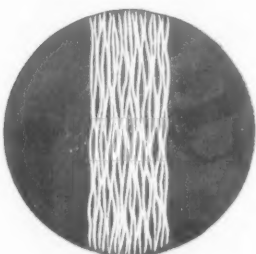
N. Y. Dept. Store Refrigerator Stocks 140% Above Last Year

NEW YORK CITY—Refrigerator stocks in department stores here on Oct. 31 were 140% higher than they were on the same day last year, the Federal Reserve Bank of New York has reported. Over-all inventories were up 4% and house furnishing inventories 21% for the same dates.

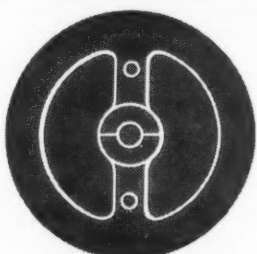
**WILSON**  
REFRIGERATION, INC.  
• FARM AND HOME FREEZERS  
• REACH-IN REFRIGERATORS  
• WALK-IN REFRIGERATORS  
• FARM MILK COOLERS  
DIVISION OF WILSON CABINET CO., INC.  
SMYRNA • DELAWARE

**ALCO**  
ENGINEERED REFRIGERANT CONTROLS  
ALCO VALVE CO.  
ST. LOUIS

Special inorganic fiber packing . . . high in oil-holding capacity!

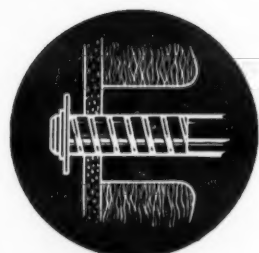


Extra large oil reservoir . . . isolated from heat, permanently sealed!



NEW Redmond SINGLE BEARING, SHADED POLE MonoMotors

Forced recirculation of lubricant . . . for long, service-free operation!



Precision finished single bearing . . . extra long for true shaft alignment and free running rotor!



Here are the features you want . . . the features you need in single bearing fractional horsepower electric motors. Brought to you now in the new Redmond MonoMotor . . . 4-pole shaded pole, up to 9 watts output. Designed and built to give you outstanding performance over years of smooth, quiet, service-free operation. Look! ★ Extra large oil reservoir . . . isolated from heat and permanently sealed. ★ Special inorganic fiber packing . . . dependable oil release, improved lubricating action. ★ Forced feed lubrication of bearing surfaces by means of spiral pump on shaft. ★ Extra long, precision finished single bearing for accurate sustained rotor alignment. Then add varnish sealed windings for humidity resistance and cooler operation, die cast aluminum rotor, and a rugged cast iron case. There you have a perfect little low-range power unit designed to out-last your longest expectations. Mounting brackets available, too, for simplified installation. Write today for details.



**Redmond**  
COMPANY, INC.  
OWOSSO, MICHIGAN



OFFICES IN NEW YORK, CHICAGO, DAYTON, LOS ANGELES, DALLAS



Key to your low-range power requirements.

EXPANDED FACILITIES ★ PROMPT DELIVERIES ★ SERVICE BEFORE AND BEYOND THE SALE



## Figure All Costs Before Tacking on Profit, Get Rid of Old Merchandise, Contractors Told

By George M. Hanning

DETROIT—After a refrigeration contractor has had a piece of merchandise on his floor for more than six to eight months, he should sell it for what he can get, Martin McCracken, refrigeration cost accountant with the Dresco Refrigeration Co., advised members of the Refrigeration Contractors Association of Detroit recently.

When merchandise has been sitting around too long, the cost of keeping it is already eating into his profits, he said. "You aren't going to make any money on it anyhow, so the best thing to do is to get rid of it. Get your working capital back and buy something else that you can realize your normal profit on."

One member of the audience raised the point of whether such dumping of merchandise would be an ethical business practice or would be unfair competition.

McCracken said that he did not believe that this would be an unfair business practice. In the first place, he pointed out, in nine cases out of 10, the merchandise is not competitive or you would have sold it at your fair profit. It is usually some off-brand or obsolete item that you took a chance on selling.

In the second place, he declared, how often do you get such distress merchandise? It is really a matter of how smart a buyer you are. If you buy wisely and get good salable merchandise, your percentage of distress goods will be very small.

If you do not use good judgment, then the percentage will be higher and in this case you will not stay in business long, he asserted.

McCracken emphasized to the group the importance of figuring in all costs—material, overhead, and labor—before tacking on a percentage of profit. If the contractor doesn't figure in all costs, then he is not getting the profit he thinks he is, he warned.

The first thing to determine, he said, is his capital requirements. A good rule of thumb is that his capital should be 40% of expected annual sales volume. However, this can vary with the type of business he owns and the way in which he intends to operate.

At any rate, he noted, the refrigeration contractor, or anyone else, cannot keep on spending money with-

out having it or having ways of getting it. Insufficient capital means that the contractor will have insufficient inventory and equipment to do the job he intended and will lose sales that he should have made.

To determine the price at which the contractor must sell his merchandise to make a profit, he must try to determine in advance what his sales costs are going to be.

These will include material costs, cost of labor, overhead, freight, and warranty service. Many of these are small factors, McCracken admitted, but he warned that the small factors make the difference between profit and loss.

Overhead, he said, will include such uncontrollable factors as rent and taxes plus such controllable factors as advertising, shop supplies, utilities, and salaries (other than labor costs).

From these various overhead costs,

the contractor can determine a percentage of gross profit that he should allow to cover them.

This overhead can be split on a monthly or annual basis. In the refrigeration business, due to its seasonal nature, it is best to figure overhead on an annual basis and clear it out that way.

When the contractor has found what percentage his overhead is going to require, then he can budget the expected costs and apply them to each job if he wants.

In that way, he can find out if the actual cost is at variance with the established percentage. If it is over the percentage, he will recognize this as a danger signal and will start surveying his controllable overhead to see if he can cut it down.

Or, McCracken declared, he can go out and hustle up more business so that the actual cost does come within the pre-established percentage.

## Prize of \$50 Offered For House Organ Name

## Frontier Refrigeration Buys Jamestown Company

CHICAGO—An award of \$50 is being offered by Chase Refrigeration Supply Co. here to the serviceman or contractor who submits the most suitable title for its new monthly house organ, the first issue of which has just been published.

The suggested name must be accompanied by a statement in 25 words or less explaining the reason for the suggestion. The contest deadline is midnight, Jan. 15.

Lloyd C. Rylander, sales promotion manager, said the publication will be sent to all names on the firm's mailing list and any others who request it in response to an advertising campaign Chase is planning to present.

## Davis-Tursky Changes Name

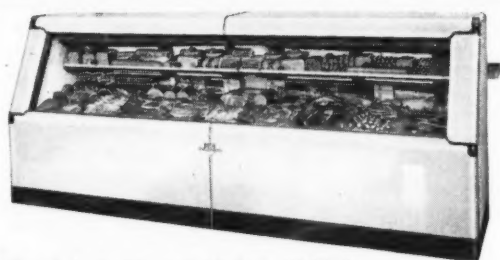
GREEN BAY, Wis.—Davis-Tursky Refrigeration here has announced a change in its name to Davis Refrigeration & Appliance Co.

JAMESTOWN, N. Y.—Purchase of the Commercial Refrigeration Sales, 115 East Third St. formerly owned by the late Carl E. Boyes, by the Frontier Refrigerating Co., Inc., of Buffalo, was announced by Wyman L. Ansley, new manager of the Jamestown concern.

Ansley said the company will operate here under the name of Commercial Refrigeration Sales, a division of Frontier Refrigeration.

At the same time, Frigidaire division of the General Motors Sales Corp. announced the appointment of Commercial Refrigeration as the Frigidaire commercial dealer for the Jamestown area. The appointment authorizes the company to handle all sales and service on all Frigidaire commercial refrigeration products.

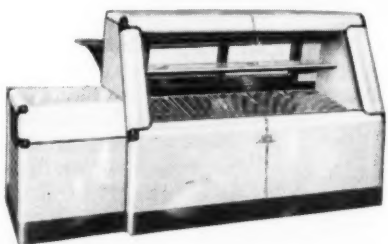
Ansley comes to Jamestown directly from Buffalo, where he was service manager and commercial and air conditioning sales manager for Frontier this year.



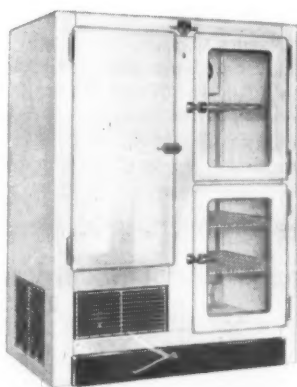
Double duty models. Lengths of 6, 8, 10, and 12 feet. Welded steel, with full porcelain exterior. Stainless and porcelain interior. Miraflex coils, K-Beam lighting, triple plate glass front, adjustable mezzanine shelf. 4-in. thick insulation.



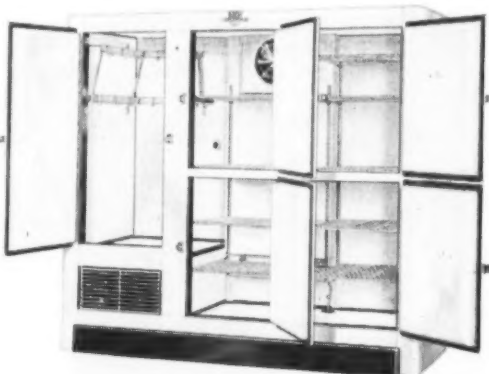
Top display cases made to the same specifications as the double duty models. Insulation is full 4-in. thick. Mezzanine shelf removable.



A self-contained display case with 6-ft. of refrigerated length. Furnished with or without the condensing unit.



42-cu. ft. cabinet, self-contained. Solid or glass doors. Interior arrangement extremely flexible. Equipped optionally with shelves, meat rails, or bakery pan slides for dough retarding.



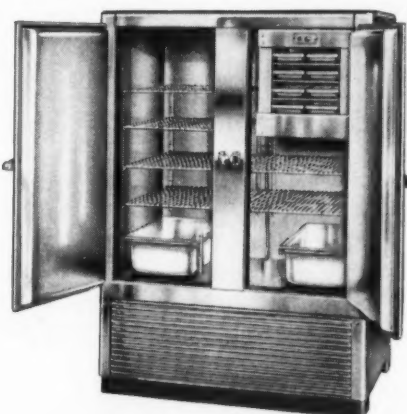
65-cu. ft. self-contained cabinet. Solid or glass doors. Equipped optionally with shelves, meat rails, or bakery pan slides for dough retarding. Available in black finish for florist use.

## The line of least resistance

In selling commercial refrigerators today, one fact stands out emphatically: the brand name counts. Users are shy of off-brands. The KOCH reputation has been outstanding since 1883. Years and years of national advertising have made KOCH a familiar name to countless thousands of business men. KOCH produces equipment for almost every type of commercial use. Get the inside story, and you'll agree the line of least resistance is the quality line—the KOCH line.



25-cu. ft. all steel, self-contained refrigerator with stainless steel liner and white Dulux exterior. Furnished with either ice-maker or forced convection evaporator (as shown).

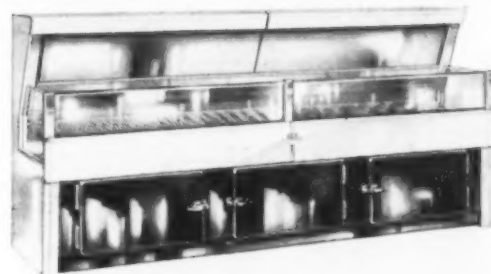


25-cu. ft. all steel, self-contained refrigerator. Stainless liner, stainless front and ends. Furnished with either ice-maker (as shown) or forced convection evaporator.

# KOCH Refrigerators

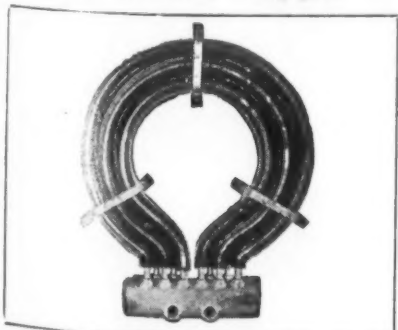
NORTH KANSAS CITY 16, MO. Since 1883

Write Today For Details and Open Territories



Self-service cases for dairy products, produce, or pre-packaged fresh meats. 10-ft. long. Equipped with oversize evaporator for really cold operation, down to as low as 33°. Suitable for arrangement in continuous line-ups.

## ROME-CONDENSER ★ Jointless Type ★



Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

**ROME-TURNEY RADIATOR COMPANY**  
222 CANAL ST.  
ROME, N. Y.



## Produce and Banana Warehouse In Denver Eliminates Bottlenecks, Reduces Spoilage

A portion of one of the 10 walk-in coolers constructed for the banana and produce warehouse operated by Miller



Groceteria Co. to serve its chain of 10 supermarkets in the Denver area. Self-defrosting coils are visible at the top.

DENVER—A huge, new refrigerated produce and banana warehouse that was designed to eliminate as far as possible handling bottlenecks and spoilage was built here recently by the Miller Groceteria Co. which operates 19 supermarkets in the Denver area.

Designed by Joe Sunshine, produce director for the Miller chain, and installed by Snodgrass and Smith, Denver refrigeration engineers, the refrigeration plant in the warehouse includes 10 walk-in coolers powered by 14 condensing units ranging from 7½ to 10-hp. capacity.

The building itself measures 410 by 120 ft. Receiving docks to ac-

commodate 15 trucks line one side and spur trackage for seven freight cars runs along the other. Both trucks and freight cars can unload produce directly into five huge walk-ins that comprise the center of the building.

The other five walk-ins are located at the rear of the building and are set up specifically for ripening and cooling bananas.

The five produce walk-in boxes are set up in a row and enclosed in ceramic tile with 4 to 6-in. cork insulation layers in floors, walls, and ceiling. Each unit measures 29 ft. wide by 51 ft. long by 10 ft. high. Each is equipped with 6-ft. doors at

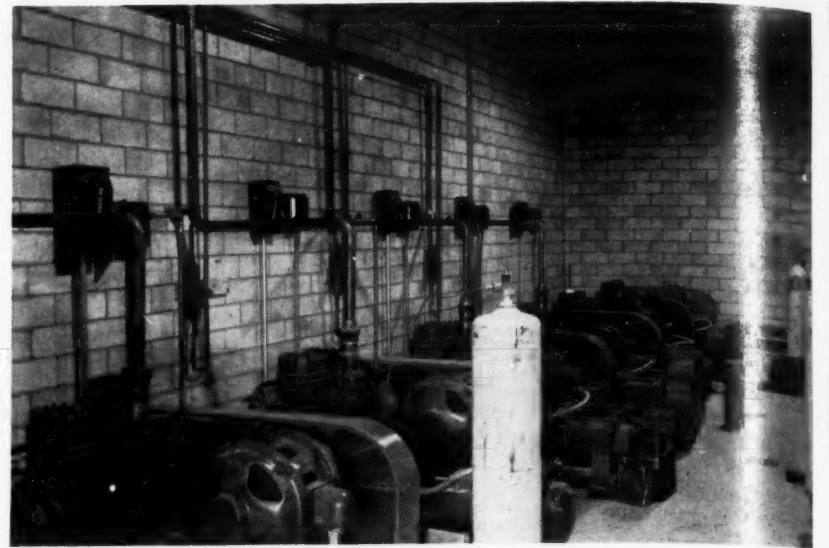
either end for quick loading and unloading.

One of the five walk-ins is set up to cool any type of produce down to marketable temperatures within five or six hours. When fruits or vegetables arrive at the warehouse at "field" temperatures of 75° or 80° F., they must be chilled rapidly for quick turnover, according to Sunshine.

They are immediately placed in this chilling walk-in that maintains temperatures anywhere from 32° down to 0° F. The box is equipped with 12 fin-type coils and seven blower units that act as auxiliary refrigeration.

During the quick-chilling process,

## The Power Behind the System



Several of the 14 Frigidaire condensing units needed to power the huge warehouse system.

both the ceiling coil units and the blower units operate at full output. The blower units cut out when the desired temperature is reached.

The other four walk-ins can be used either for chilling or holding, but maintain temperatures ranging from 32° to 45° F. Each contains 14 automatic defrosting, ceiling-type fin coils with baffles under them.

During the defrost cycle, Sunshine declared, the temperature loss in the box is 1° F. or less.

These units are used to cool produce that does not require such a rapid change in temperature. They can bring the fruits and vegetables down to 32° F. in 24 hours. Each can accommodate from five to six carloads of produce.

At the end of this row of walk-ins is the machinery room. It contains two 10-hp., six 8½-hp., and six 7½-hp. condensing units cooled by circulating city water. A draft of outside air can be circulated through the room if additional cooling is desired.

Each walk-in has its own automatic defrost condensing unit with

separate controls mounted on the wall above. The condensing units are spaced on box platforms, 3 ft. apart.

The five banana ripening refrigerators at the rear of the building measure 51 ft. long by 10 ft. wide. They are equipped with alternate hooks and eyes which accommodate 400 hands of bananas in two levels.

The bananas are hauled from freight cars on an overhead track system into one walk-in. When completely filled, the room is sealed shut. The bananas are then momentarily "shocked" with live steam at 80° to 90° F.

After flooding the bananas, the steam is ejected with the help of a blower from the walk-in through small doors mounted directly above the entrance doors into the box. Temperature then is lowered to 70° F.

When the bananas are cooled to this temperature, they are moved on overhead rails from walk-in to walk-in, the five walk-ins being hooked up in a multiple system. In that way they are gradually cooled from 70° to 60°, 50°, 40°, and finally 35° F.

### Miller Directs Sales In East for U. S. Airco

MINNEAPOLIS—Norton R. Miller has recently joined United States Air Conditioning Corp. as manager of the company's eastern sales division which includes the New England states, part of New York state, and part of Pennsylvania, the company has announced.

This sales division will continue to headquarter at the New York office of usAIRco.

Miller has been associated with the Trane Co. in New York City for 11 years, with the air conditioning division of Chrysler, and with several air conditioning engineering firms.

### Acme Engineering Co. Becomes Edwards Refrigeration, Inc.

RICHMOND, Va.—The firm formerly known as Acme Engineering Co., Inc., is now doing business as Edwards Refrigeration, Inc., according to an announcement by H. Banks Edwards, president.

Edwards said the personnel of the new company and the type of operations are unchanged.

The firm is exclusive representative in the Richmond area for Frigidaire commercial refrigeration and air conditioning equipment. It also specializes in complete service or this type of equipment on the monthly inspection basis and on the annual service contract basis.

### Refrigerated Truck Firm Incorporates In San Antonio

SAN ANTONIO, Tex.—Cahill Refrigerated Trucks Inc. was granted recently a charter of incorporation. Authorized capital stock was listed at \$50,000. Incorporators: Josephine Cahill, Otis Cahill, and Edward Cahill.

### Bowe Is Public Relations Head at Cordley & Hayes

NEW YORK CITY—Walter A. Bowe, formerly industrial consultant on the staff of Walter Dorwin Teague, industrial designer, has been named director of public relations for Cordley & Hayes, it was announced by C. M. Cordley, president of the water cooler company.

Bowe has served in various advertising and public relations executive positions with General Electric Co. and Carrier Corp., and was active in the public relations program of the air conditioning and refrigeration industry, the announcement said.

### L. S. Damon Speaks At Florida Meeting

MIAMI, Fla.—Air Conditioning and Refrigeration Association of Florida held a dinner meeting for members of the refrigeration and air conditioning industry in the Miami area at the Hotel Columbus Dec. 6.

Richard Roberts of the Florida Power & Light Co. acted as toastmaster. The principle speaker was L. S. Damon of the National Electrical Contractors Association.

# The First Really New EVAPORATIVE CONDENSER

by **KRAMER**

**Opens Many Opportunities in the Small Tonnage Field**

*Featuring . . .*

- Small Capacities—2 to 8 tons
- Single or Multi-Circuits
- Stainless Steel Sump
- Extra Large Water Delivery
- Packless & Greaseless Pump
- Bare Tube Coils
- No Nozzles
- No Belts
- Low Cost
- For Freon, Methyl and Ammonia

WRITE FOR BULLETIN R162B

**KRAMER TRENTON CO.**  
Trenton 5, N. J.



Be Smart! Get the New No. 148 Fall and Winter **DEPENDABOOK!**

**HARRY ALTER'S REFRIGERATION PARTS CATALOG**

A catalog issued to and for the trade only... Write—NOW—on your letterhead, for your copy of the most nearly complete refrigeration-parts-and-supplies catalog in the business—the new **DEPENDABOOK!**

**The HARRY ALTER CO.** 1728 SOUTH MICHIGAN AVE. CHICAGO 16, ILL.  
134 Lafayette St., New York 13, N. Y.

WHOLESALE ONLY



## INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)  
were built in one day than on any single day previously in Frigidaire history.

3. Frigidaire passed the 10 million mark in production of refrigerating units for homes and businesses.

The 10 millionth Frigidaire represents an achievement, because the tenth million units were produced in only as many months as it took years to build the first million.

During this 27 year span, the Frigidaire factories have grown from one small building to three big plants in Dayton, employing more than 21,000 people, and occupying nearly four million square feet of floor space. In addition, the modern Frigidaire factory in Canada has been increased in size to provide 343,000 square feet of floor space. And, the Overseas Division manufactures or assembles Frigidaire products in several foreign countries.

Frigidaire product lines have expanded during this period until today there are more than 45 different groups of appliances, commercial refrigeration and air conditioning equipment, available in over 500 models and sizes.

### The Machine Age vs. Male Freedom

The following editorial from the world's foremost newspaper intrigues us no end:

"The traditional concept of the cold-eyed office manager with little warmth and less blood has now lost even its flesh. The new tyrant is in the machine—remorseless, unchangeable, that knows no days off and gives none. Gone the years of apprenticeship, of ink-staining, of midnight wrestling with stubborn books which were once the only way to polish a man into a fine figure of business. The new Uriah Heap is a crisp slip of a girl who does wonders with a stab of a finger and a flip of the wrist.

"Some old-timers wonder how an efficiency index can be raised by machines operating at such unholy paces that humans are sound-beaten to the threshold of what doctors call symptomatic anxiety. Yet, part of the office machine revolution is silence. Picture a roomful of alert workers who merely check for operation. When the supervisor sees his force relaxed, he knows that output

is clicking. When his staff is working like frenzy, the machines have misfired and the office, as a production unit, has collapsed.

"Some economists think all tedious work will shortly be on the mass production basis so characteristic of the American economy. When expanded output has the end product of a happier employee, gadget contributions enter the social field. How about other office reforms—good air, good light, no dust, no smog, no rub-in dirt? Perhaps these wonder-workers can even pioneer the wearing of a good, comfortable, tie-less sport shirt for summer offices."—editorial in the *New York Times*.

Welcome, staid, conservative old *New York Times*, to our crusade for more sensible men's apparel! You're on the beam!

### The Bundy Program

Profit sharing and incentive-compensation is the key to the barred door of social relations in this hectic era.

And the Bundy Tubing Co. has proved it.

Its "participation" program is paying off handsomely.

"The workers, themselves, do not tolerate loafing and even see to it that management is doing its part in properly laying out their work," according to Wendell W. Anderson, president of the Bundy Tubing Co., of Detroit.

The cost savings sharing plan, in operation at Bundy since April, 1946, has shown "very gratifying results," he declares.

Production has increased 50 per cent, absenteeism and grievance time have dropped about one half, labor turnover has decreased 81.6 per cent, and employees turn in "hundreds" of suggestions for improvement of production methods, Anderson says.

Most important, employees have earned an average of 25 cents an hour extra during the last two years.

The Bundy plan is based solely on the relationship between the sales dollar and the hourly wages which go into it.

Periodically, company accountants determine whether the wage cost per dollar has dropped; if so, employees share the savings with the company on a 50-50 basis.

Employees receive benefits on the number of hours worked, regardless of their hourly base pay rates or job classifications. Payments to each employee last year totaled \$532.77, and since the plan was inaugurated, the company has paid out \$1,153,532.

Aside from the monetary benefits to both the employees and the company, the greatest tangible benefit derived from the operation of the plan to date has been the tremendous effect on the morale of the shop.

Probably the greatest good that

profit-sharing has done is in the attitude of men toward their work. They no longer look on each day as another opportunity to gold-brick—they really put out a day's work.

Great idea, say we.

### Exactly

An error in a General Electric handbook on nuclear physics made sense for millions of atom-bewildered citizens. The boldface headline on a page describing giant atom smashers made by G-E read, "Unclear Physics."

### What It's Like When Barbarians Move In

Historic parallels between ancient Rome and Greece with modern Britannia and America—as to their "cold war" with the barbaric Russians—are inescapable.

When our English-speaking peoples vote for "bread and the circus," they are sealing their own doom, and opening the door to uncouth vandals. In substantiation of this sweeping statement, let us quote a reformed German Communist who has recently arrived in London:

"Here are some of the things that have made Berliners Anti-Russian: 'First, the low standards of the Russians disillusioned us. They mistook the poorest Berlin housing for luxury flats of wicked capitalists.

"Second: their ignorance of everything technical: they washed their faces in toilet bowls, for example. They were crazy about watches—wore them in masses up and down their arms, but took them only when they 'tick-tocked.' They demounted wash-basins by thousands, brought

them to another place and waited for water to pour out—not realizing that tubing system brought the water from here to there.

"Berliners tell hundreds of such stories. One: A Russian officer takes photographs with a Leica, then takes out the film. He sees nothing is on it, so he tramples the Leica under foot. Another: A Russian soldier sees a boy riding a bike. He grabs the bicycle, tries to ride it himself, does not succeed, gets mad—and shoots up the bike."—Gabriele Tergit writing in the *Contemporary Review* (London.)

### Poker Story

Fellow some readers of this column probably know is a militant advocate of "straight" poker (nothing wild.) In a dealer's-choice game with several long-time friends, one of the latter "ribbed" this conservative poker player by announcing:

"Five-card draw, one-eyed jacks wild, aces to open. If aces don't show up in the first hand, it takes two pairs to open. After that, three of a kind, a straight, a flush, and so on up."

Our conservative hero growled, grunted, and niff-nawed. But he stayed. Hand after hand was dealt, and the antes boosted the pot enormously because nobody could open.

So help me, after the six players had drawn cards for more than an hour, Our Hero, the fellow who hated wild games, raked in a whopping big pot with a royal flush in spades—including the two one-eyed jacks!

There must be a moral to this story . . . somewhere . . . we contributors all agreed.

### Another True Story

Harris Supply Co.  
Kalamazoo, Michigan

Editor:

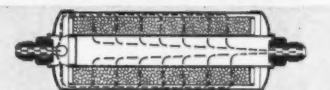
Reading "Inside Dope" reminds us of a true happening which took place at our counter here in Kalamazoo.

A few months ago one of our good customers brought with him to our store his new helper, a veteran of about 30 days experience in refrigeration service. As we waited on the former, the latter strolled through our store making loud, if unnecessary, comments on any merchandise which happened to catch his eye. We ignored this noise as best we could until he suddenly appeared holding a 1/4-in. swivel nut connector (which everyone in refrigeration knows is two flare nuts connected by a very short length of copper tube). Holding this up in front of everyone, he asked: "Say, how do you get these apart? We need some of these!"

Thanking you for many hours of pleasant reading, both in the NEWS and your books, I am

(Mrs.) ILA HARRIS POOL

### POSITIVELY WILL NOT CLOG



#### "Cross-Flo" DRIER-FILTERS

Eliminate pressure-drop troubles with Cross-Flo Drier Filters' exclusive new principle of flowing the refrigerant uniformly and slowly across a thin, cylindrical drying-agent bed instead of forcing it thru a long powder-clogged bed.

Capacities: Liquid Line—1/4 to 7 1/2 HP; Low-side—1/4 to 15 tons (Freon 12); Suction Line—3/4 to 3 1/4" OD.

REMCO INCORPORATED  
ZELLENOPLE, PA.



Triple inspection and careful selective fitting of all parts is standard procedure at Tecumseh's high speed production plant. Above, rigid crankcase inspection holds cylinder bore to .0002" (two ten-thousandths of an inch) round and taper.

# Now!

## Famous Chieftain

### Single, Twin and 4 Cylinder Compressors

### Ready for Immediate Shipment!

Bottlenecks have been broken, material shortages licked . . . and, now again at last, genuine Chieftain Compressors are being produced in sufficient volume to assure immediate shipments . . . in unrestricted quantities . . . for all replacement installations as well as for assembly by manufacturers into their own products and equipment.

Chieftain, you know, has consistently set the quality pace for the industry . . . has pioneered such important advances in compressor design and manufacture as mass precision machining methods, forced feed lubrication for reciprocating parts, automatic cylinder lubrication, "Chieftainizing" connecting rods to prevent scoring, plus many, many others. And these are only a few of the reasons why smooth, quiet, dependable Chieftain Compressors have become the standard of the industry . . . a few of the good basic reasons, too, why it pays to insist on genuine Chieftain Compressors for new equipment and all replacement installations.

## TECUMSEH PRODUCTS COMPANY

Tecumseh, Michigan

EXPORT DEPARTMENT • 2111 Woodward Avenue • Detroit 1, Michigan

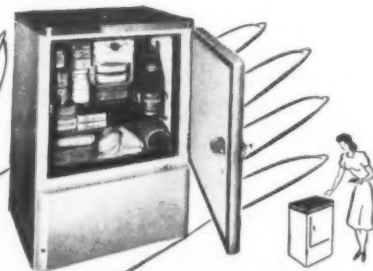


WORLD'S LARGEST INDEPENDENT PRODUCER OF COMPRESSORS AND CONDENSING UNITS FOR THE REFRIGERATION INDUSTRY

### EVERYBODY IS A PROSPECT...

America's **BIGGEST LITTLE** Refrigerator

Freeze-O-Matic  
JUNIOR



3 1/2 cubic foot REFRIGERATOR with 6 cubic foot CAPACITY!

Exclusive! Freeze-O-Matic's first with the scratch resistant Formica top . . . no dirt — no seepage!

Successful merchandising is the ability to adapt your product to multiple uses, new markets. Here, in the Freeze-O-Matic Junior, is the "little GIANT" with everybody a prospect!

Here's the ideal unit for modern apartments, kitchenettes, bungalows, dentists' and doctors' offices, laboratories, counter drug stores . . . and any place where space is limited. Just the thing, too, as that extra unit for basement, porch, home or office bar.

SOME EXCLUSIVE TERRITORIES STILL OPEN. WRITE, WIRE OR PHONE FOR FURTHER INFORMATION.



ACME-NATIONAL  
REFRIGERATION COMPANY, Inc.  
434 DYAN STREET • ST. 1-3040 • BROOKLYN 17, N. Y.



## SCHNACKE COMPRESSORS AND CONDENSING UNITS

Now Available with  
**THERMATROL  
CAPACITY CONTROL**

- 1-Improves Refrigeration System Efficiency
- 2-Eliminates Unnecessary Cycling
- 3-Reduces Electric Current Consumption

These are some of the "plus" advantages now available in all SCHNACKE improved Compressors and complete Condensing Units.

For long wear and greater operating efficiency, SCHNACKE Compressors have replaceable, refrigerant-cooled steel cylinder sleeves, balanced forged crankshaft, sealed crankcase, positive pressure lubrication, and many other advanced features. Compressor models available from 5 to 50 H.P.

SCHNACKE Condensing Units are complete with cleanable type fin tube condensers mounted in sturdy base, water control valve and pressure controls. Models available from 5 to 25 H.P.

Write SCHNACKE, INC., 1016 E. Columbia St., Evansville, Indiana, for engineering details.

**SCHNACKE, INC.**



WE, all of us, at Chase Refrigeration Supply Company pause at the conclusion of a big and busy year to wish you, all of you, Sincere Good Wishes for a MERRY CHRISTMAS and a HAPPY, PROSPEROUS NEW YEAR.

**CHASE REFRIGERATION SUPPLY CO.**  
546-48 W. 119TH STREET ★ CHICAGO 28, ILLINOIS

## Chicago Utility To Work Out Kinks In Operation of Heat Pump for 6-Room House

CHICAGO—A second attempt to draw enough heat from the earth by heat pump to warm a six-room house will be made here this winter by Consolidated Edison Co., the *Chicago Tribune* reports.

M. S. Oldacre, director of research for the utility, told the *Tribune* that the company tried unsuccessfully last year to extract heat from underground water by placing a U-shaped pipe in a well. Warm water did not come into the well fast enough to permit the pump to operate efficiently, he said.

This year, the company will attempt to get the heat by laying pipes in the earth at a depth of six feet. At that level, he noted, earth heat here runs about 63° F. in summer and 40° F. in winter.

Oldacre pointed out that natural conditions favoring the use of heat pumps to heat homes on a practical basis are not present in Chicago.

Air cannot be used as a source of heat, he indicated, because the temperature goes too low in the winter to extract the heat at a reasonable cost.

Water could be used, he told the *Tribune*, since the temperature of ground water around Chicago is fairly constant at about 52° F., well within the economic extraction temperature range.

However, getting rid of the water after it has been used is a problem because Chicago's "ancient and overloaded" sewage system could not absorb the additional load. To return

the water to the earth after using it might raise contamination problems that would not meet the approval of the health department.

A third factor is the fact that digging the necessary well would cost about \$1,000. That, on top of the \$1,500 to \$2,000 for the heat pump itself would put the device beyond the economic reach of most householders.

Taking heat from the ground—the method now under test—also faces the objection that heat moves so slowly through the earth that several hundred feet of pipe would be needed to heat a five-room house. And there is just not enough room on the average 30 ft. by 125 ft. city lot to lay the required pipe, he indicated.

"The present obstacles to the use of the heat pump seem large," Oldacre declared. "I think the heat pump has great future prospects. The defects can be corrected, I am sure."

"I do not think it will be many years before they will be used extensively, especially in homes where considerable space is available around the house and the owner is willing to pay somewhat more for his heating plant than he does at the present time."

"Once installed and operating efficiently, the cost of operation at present fuel prices should be only a little more than gas and comparable with the cost of oil or coal heat."

## Bonneville Heads ACRMA Room Cooler Section

HOT SPRINGS, Va.—E. A. Bonneville, sales manager of the room air conditioner division, Fedders-Quigan Corp., was recently elected chairman of the room air conditioner section of the Air Conditioning & Refrigeration Machinery Association at a general meeting of the association here.



E. A. Bonneville

said to be planning a broad program of engineering, marketing, and other activities affecting room air conditioners.

## Powers Supply Incorporates

LOS ANGELES—Powers Supply Co. has been incorporated in Los Angeles county, with a capital of \$200,000, to deal in air conditioners, furnaces, stoves, and heaters. Principals are: Jesse W. Powers, Evelyn B. Powers, and Louise M. Nece, all of Inglewood, Calif.

## 'Center' Show Air Conditioned

CHARLOTTE, N. C.—Charlotte's newest and most modern theater, the Center, has opened at 1427 East Morehead St. which is air conditioned by Carrier equipment.

## Bush Plans for New Line of Water-Saving Coolers; Yearly Sales In Slight Drop

WEST HARTFORD, Conn.—In a simplified financial report that contained several unusual features, the Bush Mfg. Co. here reported net sales for the fiscal year ending Sept. 30, 1948 of \$3,315,183 as compared with \$3,893,422 for the previous fiscal year.

The company explained that this reduction in sales was due largely to the fact that most of the wholesalers and dealers were greatly overstocked at the beginning of the year. Another contributing factor, it said, was a sales resistance to high prices necessitated by increases in the prices of raw materials and labor.

Net earnings of the company for the year were \$115,430, or \$1.22 per common share after providing for preferred dividends. This compared with \$134,364 last year.

The report noted that during the past year the company has entered the heavy-duty cooler field with large floor-mounted coolers used for product cooling as well as air conditioning.

"These units have been very well accepted by the trade," the report declared, "but due to our late start in the season, the volume in the current year was small."

Good acceptance was also reported for the company's ceiling jet unit cooler as well as the electric defrost unit.

The report asserted that the company will have ready for the next season a line of small, ceiling-mounted water saver units to be used on 2, 3, and 5-ton jobs and a line of floor-mounted evaporator condensers for installations of up to 40 tons capacity.

These developments are being made to meet the demand for such equipment in communities where the use of water in large refrigeration and air conditioning installations is being restricted, the report said.

Unusual features included a page of pictures on employee activities, reprinting of two of the company's product advertisements, and a pie-chart showing where every dollar paid out by the company goes.

The chart showed that 64½ cents goes for materials and fuel; 26½ cents for wages and insurance; 2½ cents for Federal, state, and local taxes; 2 cents for wear and tear on plant and tools; 2 cents for reserve for growing; 1½ cents for dividends to stockholders; and 1 cent for interest on loans.

**usAIRco**

## Distribution and Policy Announcement Concerning

## REFRIGERATED PACKAGED AIR CONDITIONING UNITS

● We are distributing usAIRco refrigerated Store Conditioners, Window and Room Conditioners through Major Distributors or Refrigeration and Air Conditioning jobbers exclusively.

We are franchising Major Distributors or Refrigeration and Air Conditioning jobbers, on an exclusive basis pertaining to territories, with full territory protection.

We will make available complete Financing assistance to the Dealers of Major Distributors or Refrigeration and Air Conditioning jobbers.

Wire, phone, or write for details on our 1949 Products and Sales Program.

PACKAGED AIR CONDITIONING SALES DIVISION

**UNITED STATES AIR CONDITIONING CORPORATION**

Como Ave. S. E. at 33rd

Minneapolis, Minn.

*Supreme*

**in the art of  
Shaft Sealing!**

**ROTARY SEAL  
REPLACEMENT UNITS  
FOR**

Commercial, Semi-Commercial,  
Air Conditioning and Household  
Refrigerator Compressors. "Seal  
with certainty" with ROTARY SEALS.

UNIT NO. 9444

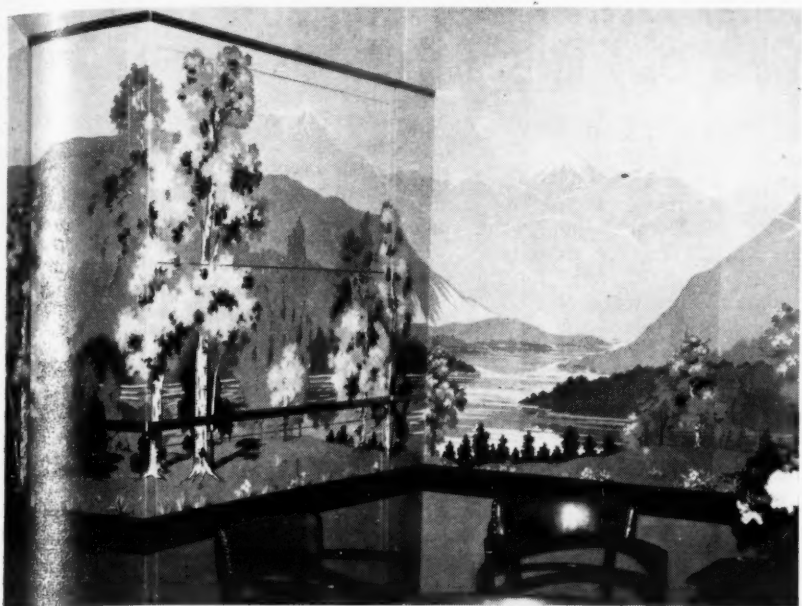
Available for over 848  
models as shown on our  
stock list and carried by  
all leading jobbers.

THE MECHANICAL SEAL COMPANY  
rotating shafts

2020 NORTH LARRABEE STREET • CHICAGO 14, ILLINOIS, U.S.A.  
CANADIAN AGENT: 2025 ADDINGTON AVENUE • MONTREAL, QUEBEC, CANADA



## Where, O' Where Has the Conditioner Gone?



In one of the dining rooms of the exclusive Town Club, Jamestown, N. Y. is this 5-ton Airtemp packaged unit, decorated to become a part of the room's mural. Installation was by Sprinchorn & Co., Airtemp dealer here.

## Temperature Equipment Names Dow Sales Mgr.

CLEVELAND—Paul H. Dow, sales promotion manager of Bryant Heater Co. for the past two years, has been appointed sales manager of Temperature Equipment Corp. here, it was announced by C. W. Millsom, vice president and general manager.

Prior to his association with Bryant, Dow was sales promotion manager and director of sales training for five years at Chrysler Corp.'s Airtemp Division in Dayton, Ohio. Dow began his career in merchandising and sales promotion as a member of the Appliance Department of General Electric Co., Nela Park, where he served 11 years. He then joined Kelvinator Division of Nash-Kelvinator Corp. as a zone representative.

Temperature Equipment Corp. is a distributor of the Chrysler Airtemp line, heating and air conditioning grilles and registers, Fedders room coolers and steam unit heaters, and accessories in the heating, air conditioning, and refrigeration field.

## 'Application Data Section' Discusses Air Conditioning

NEW YORK CITY—The American Society of Refrigerating Engineers has issued its 44th "Application Data Section" on the subject of air conditioning design.

Included in the booklet is a group of definitions necessary to clearly discuss the principles upon which air conditioning design is based. Heat loads to be taken into consideration, determining the amount of refrigeration needed, how to take into consideration the heat zones in a building, and mechanical equipment and controls needed are all a part of this six-page brochure.

Authors are H. C. Hoffmann, Carrier Corp., and G. B. Priester, Consolidated Gas Electric Light & Power Co., Baltimore.

Copies may be obtained from ASRE headquarters, 40 West 40 St., New York 18, N. Y., for 40 cents each.

## New Air Conditioning Firm

LOS ANGELES—Industrial Air Conditioning Co. is the firm name under which Ivor Malone and John C. Mabe have published a certificate that they are conducting business at 3030 Ferro St., Los Angeles.

## Electrimatic

Valves, Drifters, Strainers, Charging Lines, Quick Couplers, Forged Flare Nuts and Fittings

Ask Your Wholesaler

## Electrimatic

2100 Indiana Ave. • Chicago 16, Illinois  
Canada—2025 Addington Ave., Montreal

## Value of Carrier Tools Rises 6-Fold In 7 Years

SYRACUSE, N. Y.—A six-fold increase in the dollar value of production tools of Carrier Corp. during the last seven years was reported by Cloud Wampler, president, to men and women of the Carrier Service Club at the club's tenth annual dinner in the ballroom of Hotel Syracuse recently.

"Seven years ago we had \$1,719,000 of fixed assets," Wampler said, "and we went through most of the war period without any great increase."

"However, by the end of fiscal 1945, our fixed asset account had more than doubled. The total was \$3,818,000. A year later, the figure was \$5,449,000. Then came the purchase of the Thompson Rd. plant. At the close of fiscal 1947, our fixed asset account was \$10,700,000. And today, it is \$11,124,000."

Wampler paid special tribute to the honor guests, 59 employees, who have completed 25 or more years.

## Roy Ward & Associates File Incorporation Papers

LITTLE ROCK, Ark.—Articles of incorporation have been filed with the office of the secretary of state by Roy Ward & Associates, Inc., of Little Rock, to manufacture and sell air conditioning equipment.

Incorporators: Roy M. Ward, N. H. Smith, J. P. Johnson, Ben C. Shipp, J. J. Kane, Don B. Landers, and R. F. Duncan.

## 5-Ton Packaged Unit Becomes Work of Art

JAMESTOWN, N. Y.—The 5-ton packaged air conditioning unit installed in one of the dining rooms of the exclusive Town Club here was allowed to cause no blank gap in the scenically painted walls.

In fact a diner must look close to even find the air conditioner. The unperturbed artist has painted his mural of mountain scenery right over the unit.

"We were pleased that the packaged units were designed in such a manner that they could be refinished to harmonize with our interior decorations," George C. Chambers, president of the club, told Sprinchorn & Co., local Chrysler Airtemp dealer who installed the unit.

A second 5-hp. unit was installed in another room of the club to air condition the lounge and bar. Though the walls here carried no pictorial decorations, the top half of the unit was still painted one color and the lower half another to match the background.

The first air conditioner is designed to heat and cool two private dining rooms and the lobby.

The club president pointed out that with heating coils in each air conditioning unit and combination heating and cooling thermostats, the club has individual control of each space the year-round.

## John O. Brey Opens Tampa, Fla. Office

TAMPA, Fla.—John O. Brey, consulting engineer for air conditioning, heating, and refrigeration, with offices in Miami and Jacksonville, announces the opening of an office at 206 South Franklin St. and establishment of headquarters here for his Florida organization.

"The Tampa area offers greatest opportunities for expansion of any area in the state," Brey said, "and I expect to devote most of my time to the Tampa office."

Brey is designer of the \$125,000 air conditioning system for the new Pinellas County Courthouse branch office building to be built in St. Petersburg and the \$45,000 air conditioning installation of the music building of Florida State university at Tallahassee.

**TYPHOON**  
AIR CONDITIONING UNITS

For More Profits in  
**Air Conditioning**  
Tie up with  
**TYPHOON**  
Sizes up to 7-tons

Product of over 30 years of experience  
**TYPHOON AIR CONDITIONING CO., INC.**  
Division of Ice Air Conditioning Co., Inc.  
794 UNION STREET • BROOKLYN, N. Y.

see your **"DETROIT"**

**WHOLESALE**

for

**Expansion Valves**  
**Solenoid Valves**  
**Controls**

**"DETROIT"**

2810

**DETROIT LUBRICATOR COMPANY** General Offices: 5900 TRUMBULL AVENUE  
DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION  
Canadian Representatives: RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Float Valves and Oil Burner Accessories  
"Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

EXPORT DEPARTMENT—Box 218, Ridgefield, New Jersey

**MARLO** offers you flexibility:  
from 3 to 6570 TONS OF EVAPORATIVE CONDENSER CAPACITY!

Marlo makes highly efficient evaporative condensers in 16 sizes, from 3 to 100 tons—which you can use in combinations and multiples to fit the most complex installation requirements. For example:

- In the Bell Aircraft Corporation's enormous assembly plant at Marietta, Georgia (shown above) 91 Marlo Evaporative Condensers were installed in the air conditioning system—31 EC-90's, 6 EC-80's, 6 EC-70's and 48 EC-60's—a total of 6570 tons capacity. General Contractors: Kerby Saunders, Inc.; Sub-Contractors: Engineering Contractors, Inc.; and Marlo Coil Co.

For added flexibility Marlo Evaporative Condensers can be furnished with multiple-circuit coils to handle several refrigerating units. And they are ruggedly built to save up to 95% of normal water costs and consumption year after year! For lasting economy specify...

## MARLO EVAPORATIVE CONDENSERS

MARLO HEAT TRANSFER  
Since 1925

**MARLO COIL CO. / ST. LOUIS 10, MO.**





EVAPORATIVE CONDENSERS  
 DRY-EX WATER CHILLERS  
 FREON AND AMMONIA CONDENSERS  
 SHELL AND COIL CONDENSERS  
 PIPE COILS  
 INDUSTRIAL UNIT COOLERS  
 HEAT EXCHANGERS  
 OIL SEPARATORS  
 LIQUID RECEIVERS

Select the items you are interested in, and—

Write for free Acme Catalog today

REPRESENTATIVES IN PRINCIPAL CITIES

**ACME**  
 INDUSTRIES INC.  
 JACKSON, MICHIGAN

TOP SELLING LINE FOR '49  
 DAIRY WALL CASES • FREEZERS  
 • SELF SERVICE CASES • FULL  
 VISION CASES • VEGETABLE CASES  
 • SELF-CONTAINED  
 OR REMOTE

**COLD-IN**  
 YOUR KEY TO  
 BETTER REFRIGERATION

**COLDIN CABINET CO., INC.**  
 2800 Webster Avenue, Bronx 58, N. Y.

## Winter's Book, on How To Use Freezer Is Based on Home and Laboratory Research

ST. PAUL—An 80-page book on "How to Use Your Home Freezer," written by James D. Winter has been published by the McGill-Warner Co. The volume covers 25 main topics from defrosting to wrapping materials, and from freezing of baked goods to re-freezing thawed foods.

Winter is head of the frozen food research laboratory of the University of Minnesota Agricultural Experiment Station. Considered one of the top experts on frozen food research in the country, he has conducted research in the subject both in the laboratory and at home.

In his book, the author discusses the advantages of a freezer, containers for fruits and vegetables, defrosting and cooking of meat, poultry and fish, defrosting the freezer, the freezing of cooked and baked foods, how to place packages for freezing, preparation of fruits for freezing, and glazing fish and poultry.

Other subjects covered are good packaging, preparation of meat, poultry, poultry products, fruits, and vegetables for freezing, and what to do if electricity fails.

Winter warns his readers not to overload the freezer with too much unfrozen food at one time and recommends satisfactory freezing conditions as 0° to -10° F., with a proper storage temperature of 0° F.

Winter says that major loss of moisture in wrapped package for the freezer is through the packaging material itself rather than through the folds and the same is true with

respect to movement of oxygen into the package. He recommended a single wrap of one of the best materials as being better than a double wrap of a poor paper.

He urges that containers be selected that have been made especially for frozen foods as other types of containers "do not make it possible to retain garden fresh quality except for relatively short periods of storage." He adds not to pack more than two pounds of any food not previously chilled into one package.

The book contains full page meat cut charts for beef, veal, lamb, and pork published through courtesy of National Live Stock and Meat Board and a chart showing approximate yields of edible meat in live, dressed, and packaged meat weights.

Other charts show scalding times for fruits and vegetables, syrups and measures suitable for frozen fruits, preparation and packing of fruits for freezing, and a timetable for cooking frozen foods.

Winter asserts that the modern home freezer offers many interesting possibilities in the freezing of cooked foods but warns that it is more difficult in many instances to freeze cooked foods than uncooked foods.

He says special attention must be given to rapid cooling from 130° F. down to 68° F. or below, the danger zone for bacterial spoilage.

The volume contains no advertising. It is wire-bound with heavy-stock cover and is available through Winter or his publisher at \$1.50.

## Twin City Food Freezer York Reports Sales Festival's Success Was Limited Only by Supply

MINNEAPOLIS—Results of the August Twin City Food Freezer Festival were announced here with Clayton Knutson, Payne Appliance Co., St. Paul, the winning salesman who sold 12 freezer units and won an expense paid trip to Chicago. Over-all results were termed "poor," but only because of inadequate supplies of units to meet demand.

Distributors reported the bulk of their freezers on hand at the start of the promotion drive was disposed of within 10 days and dealers could only promise later deliveries on most models.

Ted Losby, dealer promotion manager for Northern States Power Co., said the campaign was particularly effective in its influence in the smaller communities of Minnesota and bordering states where dealers quickly tied in with the Twin City drive and pushed freezers in their own communities.

He cited the cities of St. Cloud, Mankato, Montivideo, and Faribault, Minnesota as areas where dealers supported the Twin City campaign effectively. Sales were up fairly well during the campaign until short supply diminished its effect.

Some 76 Minneapolis appliance dealers and about 40 in St. Paul co-operated in the one-month promotion backed by advertising and freezer demonstrations and clinics in the Northern States Power auditorium.

Philco, General Electric, Frigidaire, and others ran out of units early in the campaign. Frigidaire reported they sold two and one-half carloads more than what they could deliver.

Rural areas, in particular, were sold on freezers and their advantages. However, Losby said, there is much need for an educational program in farm communities to show consumers uses of freezers other than storing meat products.

He also noted that manufacturers could do a better promotional job if they substituted offers of packaging materials with freezers rather than other types of present consumer offers which include supplies of foods, etc.

He said Northern States Power Co. was contacting appliance dealers in its area to make use of the services of Tom Millot, packaging authority in the frozen food field, who he said, was doing much to promote proper use of freezers but was "carrying the ball alone."

Runners up in the sales contest were N. E. Kleckner, Stuefer (G-E) Co., Minneapolis and Lawrence Skepper, Dayton Bluff Hardware Co., St. Paul. Each received awards of \$75.

### Bangs Bros. Opens Store

BUFFALO—Bangs Bros. has opened a new furniture and appliance store at 525 Washington St. The firm has leased the three-story structure and plans to purchase it. Charles C. Bangs and Hiram E. Bangs head the company.

YORK, Pa.—An increase of 30% in the net sales of York Corp. for the fiscal year ending Sept. 30 as compared with the previous fiscal year was reported to stockholders recently by S. E. Lauer, president of the firm.

Net sales on which profit was taken was \$56,494,430 as compared with \$43,400,658 last year.

Net earnings after taxes were \$3,150,862 which is equivalent to \$3 per share of common stock outstanding after provision for preferred dividends. These earnings compared with \$2,242,733 or \$2.18 per share for the previous year.

Net bookings of new business for the year amounted to \$55,475,697 compared with \$42,964,961 a year ago. The small difference between net sales and net bookings for the fiscal year represents a minor reduction in backlog of unfilled orders compared with a year ago.

The stockholders' investment (net worth) on Sept. 30, 1948, amounted to \$26,287,006 as compared with \$23,961,474 the previous year-end. Working capital on Sept. 30, 1948, amounted to \$20,949,763, an increase of \$2,500,005 during the year.

Lauer said that comparisons of production were made of the year just closed with the average prewar period 1936-1939.

After correcting value of production for the past year by a 57% inflation factor, thereby placing the two periods on an equivalent basis, the study showed that while there was only a 4% increase in floor area used throughout the plants, the actual value of production increased 266%.

Much of this increase is attributable to retooling of the plant for new and existing products.

Lauer also said that the annual payroll in York, including both the hourly paid and salaried groups, had reached an all time peak of \$12,123,521.30.

### Hajoca Appoints R. B. Davis Asst. Mgr., Refrigeration Div.

PHILADELPHIA—Hajoca Corp. has announced the appointment of R. B. Davis as assistant manager of its refrigeration division.

Davis was formerly with Melchior-Armstrong-Dessau Co., where he served as manager of the southern division. He was also with the York Corp. for a number of years, serving in an engineering capacity.

Hajoca's refrigeration division is now represented in seven of the company's 31 branches serving the Atlantic Seaboard from Newark to Tampa. The branches with refrigeration departments are located in Philadelphia (Erie Ave. branch); Lansdowne, Pa.; Reading, Pa.; Camden, N. J.; Columbus, Ga.; Chattanooga, Tenn.; and Jacksonville, Fla.

Hajoca plans to expand its refrigeration division in 1949 to include several of its other branches, and to handle more nationally-known lines.

Use  
 Accurate,  
 Dependable

**WHITE-RODGERS**  
*Controls*



FOR COOLING MILK . . .



OR FOOD TRANSPORTATION



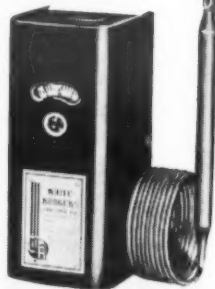
AND STORING FURS . . .



OR STORE MODERNIZATION

No matter what you make, if temperature is a factor in its operation White-Rodgers automatic controls will help make it work better.

Accepted as standard by leading manufacturers of heating, air-conditioning and refrigerating equipment. Investigate the complete line of White-Rodgers automatic controls.



## Announcement

Refrigeration Contractors are the logical ones to sell, install and service equipment required to refrigerate George-Ann Warm Room Lockers and Walk-in Boxes.

We invite them to cooperate with our agents (openings for which are still available) who are especially trained in locker financing and operation, meat cutting, processing and merchandising as well as in grocery store and locker plant layouts.

All inquiries will be promptly handled.

WRITE:

**GEORGE-ANN COMPANY** 321 HIGHLAND DRIVE SEATTLE, WASHINGTON



**WHITE-RODGERS ELECTRIC CO.**

ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air Conditioning



## Heat-X-Changer Combination Air & Water Cooled Condenser Aimed at Water Shortages

BREWSTER, N. Y.—A combination air and water-cooled condenser with cleanable water tubes has been announced by the Heat-X-Changer Co., Inc. here as its contribution to solving nationwide water shortage problems, according to C. L. Babin, assistant secretary.

The new unit, which is being offered in seven different sizes ranging from 1/4 to 3 hp., is said to make "available the capacity and performance advantages of the water-cooled condensing unit combined with the economy of operation of the air-cooled unit."

### WATER USED ONLY ABOVE 70° F.

"The air surface is sufficient to carry the load until the air temperature available rises above 70° F.," the company explained. "On many days of the year, the air temperature is below 70° F. and under these conditions no water whatsoever is used."

"Only when the temperature goes above 70° F. does the water valve open to admit the minimum amount of water necessary to keep the compressor head pressure at the desired point."

Unique feature of the new development, according to the company, is the longitudinal internal fins used to condense the refrigerant. These fins provide many extra square feet of surface and provide maximum heat transfer, the company claimed.

Water surface is equivalent to a full water-cooled condenser. Even if the ambient temperature goes to 110° F., the water surface will carry the entire load, the company stated. It will use 1.2 g.p.m. per ton with water inlet at 75° F. and outlet at 100° F.

### SMALL QUANTITIES REQUIRED

If the ambient temperature is 90° F. and the water temperature 80° F., the quantity of water used will be .80 g.p.m. per ton. With ambient 80° F. and water temperature 75° F., the quantity of water used will be .34 g.p.m. per ton.

All models except the 3-hp. unit are one row deep. The 3-hp. unit is two rows deep.

The horsepower ratings of the different models are 1/4, 1/2, 3/4, 1, 1 1/2, 2, and 3.

In announcing the new combination condenser, the company also released reprints of an article written by Edward Stevenson on the water shortage.

Stevenson said, in part:

"To the average person, a water shortage suggests stricken and abandoned farms, food scarcities, and high grocery and meat prices. These, of course, are consequences of an inadequate water supply, but there are many other grim aspects to the situation."

"Water is also the life blood of industry. Without it our vast network of railroads is paralyzed. With-

out it our hydro-electric plants are stilled and TVA and Bonneville become useless monuments to our waste and folly."

"To those of us in the refrigeration industry water is a matter of economic life or death."

"The water shortage is here and now. It presents a real threat to us all. We have got to protect our reserves of the precious fluid, and anyone who can provide industry water-conserving or water-economizing designs can make an enduring contribution to the national welfare and to industrial survival. . . ."

"When communities and even entire states begin to enact water legislation, the problem can reasonably be said to have gone beyond the joking stage. When the Federal government has to step into the bitter disputes between states over water rights—as it has had to do in the West—the matter becomes the concern of every American."

### EVERY AREA AFFECTED

"And that is exactly what it is. Our current water crisis is not a case of another isolated 'dust bowl.' It is national in scope. It affects New York and California, Indiana as well as Arizona. No point of the compass escapes the scourge. Let us cite a few facts. . . ."

"In Brooklyn the water level has fallen 35 ft. below sea level."

"In Baltimore the pumping of water has had to be restricted because the sea is beginning to seep into the depleted earth and turn the water brackish. Philadelphia and Long Beach, Calif., have had the same dismaying experience."

"In California many communities have had to 'import' water. In the Texas oil fields a barrel of water costs more than a barrel of oil."

"In Tucson, Ariz., the water level has dropped 55 ft. in six years."

"Throughout the nation many promising industrial sites have had to be abandoned because the available water supply could not sustain their needs."

### CONSERVATION IS ONLY CURE

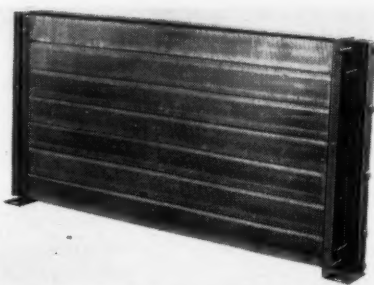
"In suburban Washington, D. C., stringent regulations have been enacted to control the use of water in refrigeration and air conditioning."

"The solution to this vital problem lies, of course, in conservation—carefully planned and thoroughly coordinated conservation on a national scale. . . . The fact that our national capital's suburb has enacted specific legislation governing the use of water in refrigeration and air conditioning should make everyone in the industry pause and take stock."

"This example may be only the forerunner of what will shortly happen all over the country, and it isn't going to do any good to yell, 'Why pick on us?'"

"It is up to the industry and to all of the big users of refrigeration

## An Answer?



Heat-X-Changer's new combination air and water-cooled condenser.

and air conditioning equipment to launch their own conservation program and beat the lawmakers to the punch!"

Stevenson pointed out the extent to which the new Heat-X-Changer unit has gone toward this goal by citing that a 1-hp. water-cooled condensing unit in New York City in year-round operation will consume about 275,000 gals. of water annually.

But this same unit, he said, equipped with a combination condenser, will only use about 16,000 gals. of water annually, because there are only about 80 days in the year when the temperature in New York City goes above 70° F. This represents a saving of 94%.

### Leahy Named G-E District Rep.

CHICAGO—William H. Leahy has been appointed the General Electric Co.'s sales representative for household refrigerators and freezers in the north central district.

## Radiant Conditioning:

## Aluminum Foil on Walls Reflects Heat In Mills-Designed, Experimental House

CINCINNATI—A completely new type of residence is being built by Dr. Clarence A. Mills, professor of experimental medicine at the College of Medicine of the University of Cincinnati, which, if proven successful, when completed in 1949, may have considerable effect upon home construction by its use of reflective radiant conditioning.

In the new house, wall and ceiling surfaces are to be of embossed aluminum foil, one of the best known heat-ray reflectors, and in place of the heating plant will be a few electrical resistance coils in each room for generating heat rays. Cooling coils, resistance wires for heat, and fluorescent color lighting will all be placed in a cove near the ceiling, to provide heat and light and remove radiant heat by indirection in hot weather.

"Under this radiant system," Dr. Mills states, "wall and ceiling surfaces act as passive reflectors of heat rays, while their actual temperatures remain the same as those of the air mass next to them. Thus, there is no longer any concern over heat flow through walls or ceiling, and no further need for insulation."

"Building construction now needs only to protect against wind and rain and to provide an inner surface for supporting the heat-reflective aluminum foil. With elimination of the

insulating factor and heating plant, building costs can be reduced sharply."

"Added to this is the lower maintenance cost of reflective radiant conditioning—since air mass and building materials no longer need to be heated in winter or cooled in summer—and the fact that under the new system each room is conditioned only while in actual use."

"Year-round comfort should thus be available for much less than is now spent for winter heating alone by conventional methods."

Dr. and Mrs. Mills will live in the house to make observations and keep occupational records, in line with laboratory experiments which have been under way successfully for 10 years.

Dr. Mills is a leading authority on the effects of climate and weather on human well being, and his three books on the subject are standard texts in this field. The books are *Living With the Weather*, published in 1934; *Medical Climatology*, published in 1939; and *Climate Makes the Man*, published in 1942.

### Davis Modernizes Plant

SALT LAKE CITY, Utah—The newly-remodeled and enlarged plant of the A. R. Davis Co., Salt Lake City commercial refrigeration firm, opened recently at 155 E. 1st South St.

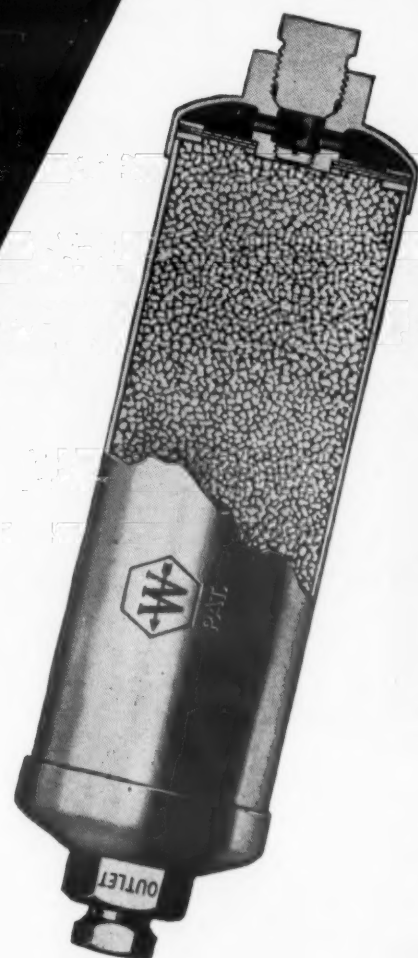
*The Mark of Quality*

**DRY...**

**Normal Flow**

**Without Pressure Drop**

Weatherhead's newly designed silica gel dehydrators and filters assure thorough removal of moisture and impurities from refrigerants — with continued normal system operating efficiency.

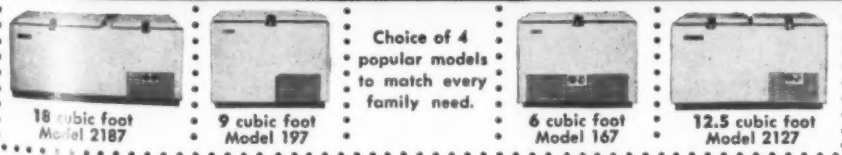


Look Ahead with

**THE Weatherhead CO.**  
CLEVELAND 8, OHIO

PLANTS AT CLEVELAND, OHIO • ANGOLA, INDIANA • COLUMBIA CITY, INDIANA • HOUMA, LOUISIANA • ST. THOMAS, ONTARIO, CANADA

## BEN-HUR Dealers Enjoy A 4-TO-1 SALES ADVANTAGE in FARM and HOME FREEZERS



Choice of 4 popular models to match every family need.

You turn prospects into customers faster with the BEN-HUR Freezer franchise! You can offer every prospect COMPLETE-LINE-CHOICE... a BEN-HUR freezer that matches exactly the need of any family in your community—with 6, 9, 12.5, and 18 cubic foot cabinets that hold from 300 to 900 lbs. of frozen food.

Each of the FOUR popular BEN-HUR Models takes the lead in modern styling, convenience features, food freezing and storage efficiency—and operating economy... And in the home they promise customer enthusiasm through longer years of food savings and better meals.

Help EVERY Family  
"Slash the High Cost of Eating"

with a BEN-HUR Freezer...

**BEN-HUR MFG. CO.**

Dept. AC634 East Keefe Avenue, Milwaukee 12, Wisconsin

**BEN-HUR FARM and HOME FREEZERS**



## They'll Do It Every Time . . . . By Jimmy Hatlo



## Do You Have 'One Foot In the Door'?

MEAT PACKING

FISHING BOATS

BOTTLING PLANTS

SKATING RINKS

BREWERIES

LOCKER PLANTS

QUICK-FREEZING

OFFICE BUILDINGS

HOTELS

THEATRES

BAKERIES

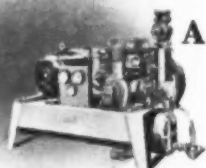
*In Every Field*  
of air conditioning  
and refrigeration  
**BAKER**  
installations rank among  
the finest

**Distributor Inquiries Invited**

Expanded post-war production now makes it possible to offer new distributorships in a number of territories not covered by the present Baker sales organization. If you're looking for a broad franchise on one of America's most complete and highly efficient lines of air conditioning and refrigeration equipment, write today for full details.

# BAKER

Zone balanced • Engineered



AIR CONDITIONING  
AND REFRIGERATION

Factories at Omaha, Nebraska and South Windham, Maine • • General Offices at South Windham, Maine

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark  
registered  
U. S. Patent  
Office:  
Est. 1926



Copyright  
1948,  
Business News  
Publishing Co.

F. M. COCKRELL, Founder

Published Every Monday by BUSINESS NEWS PUBLISHING CO.  
450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924.

Subscription Rates: U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: \$5.00 per year; 2 years \$8.00. All other foreign countries: \$7.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Please send remittance with order.

GEORGE F. TAUBENECK  
Editor and Publisher

PHIL B. REDEKER, Editorial Director

C. DALE MERICLE, Associate Editor

JOHN SWEET, Assistant Editor  
HUGH MAHAR, Assistant Editor  
GEORGE HANING, Assistant Editor  
ROY DENIAL, Assistant Editor  
Editorial Assistants: MARGARET DEAN,  
MARGARET POMMERENING, AND  
LORRAINE MAJOR.

E. L. HENDERSON, Business Manager  
ROBERT M. PRICE, Adv. Representative  
ALLEN SCHILDHAMMER, Adv. Rep.  
ALLEN S. RUSSELL, Adv. Rep.  
BETTY JANE KING, Adv. Secy.  
YVAUGHN CHRYSLER, Subscription Mgr.  
WALTER J. SCHULER, Production Mgr.

Member, Audit Bureau of Circulations. Member, Associated Business Papers.

VOLUME 55, No. 16, SERIAL No. 1,031, DECEMBER 20, 1948

## It's Simple When Explained

Any business either makes a profit, or dies. What are profits? Well . . .

Profits are compensation for the risks taken by businessmen. They are one important measurement of the performance of management, and they are an insurance of survival for any business enterprise.

Profits cannot be guaranteed under Free Enterprise. Even the best-managed firm may go years without earning a penny of profit—paying its losses out of surpluses or by enlisting the faith of investors, both old and new.

But unless fair profits are forthcoming sooner or later, that business will dry up and fold up. Investors with new money will look elsewhere, and the best kind of management will depart for greener pastures.

Under this system, if profits cannot be too low, neither can they be too high. Competition levels them down again. High profits will attract new competitors. The newcomers force down prices by accepting a smaller profit, or by giving better service; and so they gain a foothold.

This is the way American business has always operated.

Business profits ought not to be too low, or else a going business will dry up and blow away. Nor should profits be too high, lest competition intrude and ride on the originator's coat-tails.

American Free Enterprisers usually seek what is generally called a "fair profit." The question: What is a fair profit? Obviously, a fair profit is not a certain figure, like 2% or 4% or even 10%. It varies from business to business, and risk to risk.

But a fair profit surely is a return on "risk money" and personal energies big enough to insure the financial integrity of the business, and to attract new investors, when needed, with the prospect of steady and augmented earnings. Also it is large enough to permit the business to grow, have a chance to expand, and improve its service to the public.

If "a profit" can do all that—under present taxation schedules—it is doing quite a job.

Dividends on "risk money," it should always be remembered, are simply compensation for the willingness of investors to lose hard-earned savings. No blithe entrepreneur can guarantee a profit to anyone. In some years, even the best-run businesses go broke, while others draw upon "surplus" savings to survive.

What profit does American industry make? A leading research organization got some interesting answers from "the public" on that question: Eleven per cent said, 11% to 24% profit. Seventeen per cent said, 25% to 40% profit. And 25% of the public said, over 40% profit!

But the facts are otherwise.

The earning records of 1,327 leading manufacturing companies show that profits figured on net worth, for the ten years between 1935 and 1944, averaged exactly 9.3%. Profit figured on net sales for the same period, for the majority of the same companies, averaged 5.6%.

How big should profit be? It should be big enough to insure the financial integrity of the business, and to attract investors by the prospect of possibly increasing earnings. Furthermore, it should be big enough to permit the business to expand and improve its service to the public. Most people will agree that if management can operate a business so as to do all this, it is doing quite a job.

The handicaps are both enormous and cowering. Small wonder that investors hide, and that potential leaders refuse to stick their necks out.



# REMEMBER!

...You need only  
this **ONE**  Valve  
for **ALL** Suction  
Temperatures



**Model 207**  
( $\frac{1}{2}$  TON)  
THERMOSTATIC EXPANSION  
VALVE

Serves **WITHOUT ADJUSTMENT**  
on Low to Commercial to Air  
Conditioning temperatures



With a half-ton capacity, A-P Model 207 Thermostatic Expansion Valve in your service kit, you're all set for an amazingly wide range of valve applications. You can install that valve — *without* adjustment and *without* changing or exchanging any parts — on anything from low temperature sharp freezers, ice-cream makers, and dispensing cabinets to medium temperature display cases, and reach-in boxes, and up through the entire air conditioning temperature range. And you can depend on maintaining constant superheat at all these suction temperatures. No wonder the A-P Model 207 is the favorite replacement valve among service engineers today. They have long ago proved its versatility in handling more of the small-system applications ( $\frac{1}{4}$  to  $\frac{1}{2}$  ton Freon-12). They have learned to rely completely upon its greater accuracy, supersensitive response, durability and control dependability that mean "performance-insurance" and customer satisfaction.

Standardize on the A-P Model 207 for all your small-unit needs. With its liquid charged power element, it can be installed in any position or ambient temperature, and is easier to adjust, inspect and service. For details, see your Wholesaler, or write for bulletin E-131 or condensed catalog.

Simplify your service  
Improve system efficiency  
with  **DEPENDABLE**  
Refrigeration Valves

## AUTOMATIC PRODUCTS COMPANY

2450 NORTH THIRTY-SECOND STREET, MILWAUKEE 10, WISCONSIN

Export Department, 13 East 40th Street, New York 16, N. Y.



# DEPENDABLE REFRIGERATION VALVES

Stocked and Sold By Good Refrigeration Wholesalers Everywhere . . .  
Recommended and Installed By Leading Refrigeration Service Engineers



## Volume Doubles as Store Allots 5% of Gross Sales For Advertising Fund

BALTIMORE—The most profitable system of major appliance advertising is to budget a set amount based on gross sales, according to George Gardiner, head of Modern Appliance Service Co. here.

That system brought Gardiner a 100% increase in over-all store sales in the first 90 days it was tried.

Having used "hit or miss" newspaper advertising during 1947, Gardiner felt early this year that almost all appliances are now sufficiently available that the store could no longer depend on drop-in traffic.

After making a study of various types of advertising promotion, in relation to sales, Gardiner determined to budget his advertising on a departmental basis, and to spend 5% of the gross sales for each department in advertising the same appliances from month to month.

"We have concentrated our advertising budget on a campaign based on low-down-payment credit selling," Gardiner said, "and we have intensified it since announcement of the return of Regulation W."

Having recently completed a new 3,000-sq. ft. store, the Modern Appliance Service Co. budgets advertising evenly through metropolitan and "neighborhood newspapers" sticking tightly to the 5% theory.

The company heavily advertises its service department, which occupies the entire basement of the store, with separate shops for radio, refrigerator, washing machine, and small appliance repairs.

## E. & S. Appliance, Furniture Will Open In Mt. Washington

MT. WASHINGTON, Ohio—Gerald Baker of the Harry Knodel Distributing Co., and A. W. Juergens of the E. & A. Appliance Shop, have purchased the Ernst Furniture Store, 2222 Beechmont Ave., here, and will open a furniture and appliance store at the Beechmont address after Jan. 1.

The present appliance shop and furniture stores, now adjacent to each other, will be combined under the name of E. & S. Furniture & Appliance Co. The building is being remodeled.



## The McCary Signal Light

Prevents Refrigeration Losses  
Needs No Servicing  
Absolutely Foolproof

Ideal for use on walk-ins, reach-ins, display cases, ice cream cabinets, soda fountains, home freezers, floral boxes, refrigerated trucks, etc. Adjustable from -10° to +60° F.

Contact your local wholesaler

McCARY MANUFACTURING CO.  
2823 Mobile Street El Paso, Texas

## Dealer Gives 30-Day Price Cut Guarantee

PHILADELPHIA—A "guaranteed price policy" intended to protect customers for 30 days against price declines or lower pricing by competitors has been announced by the S. Swartz home furnishings store here.

The store told its customers through a large newspaper advertisement that "now there is no reason to 'price shop' or to delay your decision any longer because of possible price changes."

The advertisement explained that if prices should rise within 30 days of the date the merchandise was ordered, the customer pays only the lower price. If the price drops, the customer will be credited with or refunded the difference.

If the same merchandise is priced anywhere else at less than it sells for at Swartz's, the customer will be refunded the difference, the advertisement said.

## Pocket Pencil Sharpener Simulates Disposall Unit

CHICAGO—A pencil sharpener in the shape of a Disposall is being made available for dealers by Hotpoint, Inc. to stimulate consumer interest in this appliance and to build dealer profits.



E. E. McEwan, manager of distribution, announced recently. The miniature plastic Disposall was suggested by J. C. Sharp, vice president of engineering, as a giveaway item which would best "tell the Disposall story."

The new promotional item is an exact replica of the Disposall. The dealer can carry it with him as a pocket demonstrator. He can effectively illustrate the function of the appliance by sharpening a pencil and pointing out to the consumer that the shavings simulate the pulverized food waste material.

## Stewart Wholesalers To Distribute Admiral Line

CHICAGO—Distribution rights for Admiral products for 10 counties in the area of Rochester, N. Y., have been assigned to Stewart Wholesalers, Inc., of that city, according to W. C. Johnson, general sales manager of Admiral Corp.

Headed up by George T. Stewart, Stewart Wholesalers, Inc., was organized in June of this year. Stewart, prior to the firm's formation, served as sales manager for Motorola in Rochester, Buffalo, and Syracuse. Before that, he had been manager of the Frigidaire branch in Rochester.

Charles DeGolyer, vice president, for the past 12 years was Motorola representative in Rochester. John Bell, sales department manager, has for many years been associated with radio and appliance firms in Rochester. In charge of the service department is William Leonard, former Admiral service manager in the Rochester area.

Adjacent to downtown Rochester, the firm's plant was designed for one-stop service. Showrooms, offices, service-parts department, and warehouse are all under one roof.

## And on the Sidewalk--A Model Kitchen



## Potter's Novel Window Display Given Credit For Big Portion of Household Appliance Sales

BIDDEFORD, Me.—A novel display is credited by Potter Furniture Co. here with making a large percentage of the store's appliance sales.

The display unit is "a model kitchen right on the sidewalk" enclosed in curving panels of glass, and extended out from the front of the store.

The space enclosed in glass measures approximately 7 by 9 ft., in which Potter Furniture shows basic kitchen and laundry equipment such as refrigerator, range, sink, and washing machines, all in action.

This unit extends out 7 ft. from the wall of the store where it is di-

rectly in line with the eyes of all passersby. Appliance displays are changed from day to day, but kept always active.

Water is boiling and soup cooking on the stove, for example, while refrigerator doors are opened up by a demonstrator to show ice cubes, meats in freezer compartment, and vegetable crisper.

Frequently a white uniformed attendant is on duty in the window operating an ironer or washer.

With visibility on three sides, the novel window has stopped more traffic than anything the store has experienced, according to C. S. Potter of the management.

## New Bendix Spot Movies For Dealer Showing Were Produced In Hollywood

SOUTH BEND, Ind.—A new series of Hollywood-produced spot movies featuring the Bendix automatic washer and dryer are being offered to dealers by Bendix Home Appliances, Inc. the company has announced.

Produced with Hollywood talent, the films devote one third of their footage to dealer identification. Their production was supervised by Stewart Roberts, Bendix advertising and sales promotion director.

Each playlet is a dramatic episode playing up the advantages of using the Bendix automatic laundry equipment. Thirteen of the films feature the Bendix automatic washer and two the dryer.

Expense of showings is borne cooperatively by the dealer, his distributor and the manufacturer. Dealers select the 13 films they wish to show and schedule them over a six months period, with a full week's projections every other week.

Authorized to handle contracts for the showings are United Film Service, Inc., Kansas City, Mo.; Motion Picture Advertising Service Co., Inc., New Orleans; Alexander Film Co., Colorado Springs; A. V. Cauer Service, Inc., Independence, Mo.; and Ray-Bell Films, Inc., St. Paul.

## Dell Music & Appliance Opens

BUFFALO—The Dell Music & Appliance store has been opened in the new Delaware Park Shopping Center.

An APARTMENT-SIZE freezer  
with ESTATE-SIZE capacity!



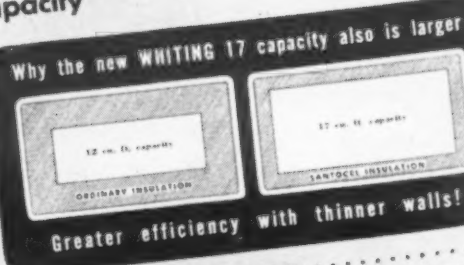
Your NEW WHITING 8 will  
give you 105 lbs. extra food capacity

Almost double the storage—without increasing the freezer size! That's because the Whiting home freezer is now insulated with Santocel, "world's most efficient insulation."

Think of what all this means! The convenience of your own "Frozen Foods Department" with plentiful in-season staples and out-of-season delicacies...right in your own home...estate-size service in apartment-size space.

This beautiful new Whiting holds more because it has thinner freezer walls! But the thinner walls...with Santocel...do a better insulation job than ordinary insulation. Each sand-like grain of Santocel is honeycombed with millions of tiny pores—tiny dead air spaces which prevent the transfer of heat and cold. That's why Santocel is twice as efficient as ordinary insulation.

Santocel does a man-size job in industrial insulation, too. Homemakers and businessmen are invited to ask about Santocel, Monsanto's silica aerogel, through the handy coupon.



Full page,  
4-color third cover  
Santocel advertisement  
as appearing in Saturday  
Evening Post, December  
18, 1948. Also:  
Fortune, December  
1948

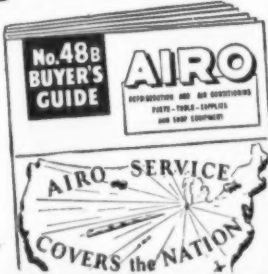
## REFRIGERATION AND AIR CONDITIONING UNITS • PARTS • TOOLS • SUPPLIES

NEW Latest Prices  
Wanted Lines

Write Today for Your Copy

Why spend valuable business hours and car expense on trips to buy parts? Get fast low-cost delivery from our large, complete stocks. Airo serves buyers in 48 States and overseas.

Wholesale Only  
Please Write on Your Letterhead



AIRO SUPPLY CO.  
2732 N. ASHLAND AVENUE • CHICAGO 14, ILL.



## Packaging Materials For Frozen Foods Covered In Catalog

BROOKLYN—A "Frozen Foods Packaging Catalog" which will prove very useful to home freezer dealers is being offered to the industry by the frozen foods division of A. E. MacAdam & Co., Inc., 95 Lexington Ave. here.

Claimed to be the most complete catalog of its kind ever published for the frozen food trade, the book contains information and prices on the merchandise of practically all the manufacturers in the frozen food packaging field.

It covers boxes, bags, cans, containers, jars, trays, plates; paper, cellophane, plexiglass, foil, and cotton mesh wrappings; twine and tapes, marketing and sealing equipment; freezing aids and preservatives; carton fillers; paper cutters, and other items.

Each listing of a product includes a general description, types and sizes, prices to locker plants and dealers, packing per case, shipping weight per unit, advertising helps offered, and special sales conditions.

The 54-page book also contains a classified index.

Anyone in the frozen foods industry within a reasonable distance of New York City may obtain a free copy of the catalog, according to A. E. MacAdam III, president.

"The MacAdam Co. is in a position to best serve the territory of the eastern states from Maine to Florida," he asserted.

## Items for Home Freezing Supplied In Cold-Art Kit

MINNEAPOLIS—Cold-Art Corp. here is promoting the idea that one of its freezer kits is a gift any freezer owner would like to find under his Christmas tree.

Literature mailed out by the firm suggests as a present a complete kit of selected wrapping materials (\$10) or a deluxe year-round kit (\$20) containing "everything" a freezer owner requires . . . from ample supplies of wrapping materials and containers to ascorbic acid and sodium bisulfite.

Also recommended are a variety of individual items. Among these is "Traypak," Reynolds Metals' new pure aluminum container which reportedly requires no inner or outer wrap.

## LeVally Named Agency for Deepfreeze Ad Program

NORTH CHICAGO, Ill.—Appointment of LeVally, Inc., advertising agency, to handle all consumer and trade advertising on Deepfreeze home freezers and Frostair refrigerators was announced recently by R. V. Newbell, advertising and sales promotion manager of Deepfreeze Div., Motor Products Corp.

The appointment is effective Jan. 1, 1949.

Sales promotion, local cooperatives, and sales training materials will continue to be handled by the Deepfreeze advertising department, under the direction of Newbell.

# Changing Temperatures Below 0°F. Show Little Effect on Properly Wrapped Frozen Foods

WASHINGTON, D. C.—Fluctuating storage temperatures below 0° F. do not seriously impair the quality or flavor of frozen foods, it has been demonstrated in experiments conducted by the Department of Agriculture at the University of Minnesota.

However, this holds true only if the frozen foods have been properly wrapped or packaged, it was pointed out.

Results of tests conducted by Andrew Hustrulid, J. D. Winter, and Isabel Noble were reported by Prof. Hustrulid at the annual meeting of the American Society of Refrigerating Engineers. The report presented data obtained on the effect of a fluctuating storage temperature in the range of 0° to -10° F. on the quality of ground beef, ground pork, strawberries, and beans. The data seems to show, Prof. Hustrulid said, that the effect is nil when compared with food stored at an approximately constant temperature of 0° F.

Even with good equipment food may be subjected to temperature fluctuations, declared Prof. Hustrulid. When food is moved from one location in the storage compartment of a home freezer or retail frozen food cabinet to another, there may be a temperature change. In the one compartment home freezer, the food in storage rises in temperature when food to be frozen is placed in the cabinet. In some of the upright home freezers, the shelves are refrigerated

and food in direct contact with the plates will undergo frequent, although generally not large, temperature changes.

Earlier preliminary work, said the speaker, showed that a constant storage temperature is not necessary for retention of quality as long as the temperature is below 5° F. at all times. For fluctuating storage temperatures in the range of 0° to 15°, other investigations have indicated that the exposure of frozen foods to the "high" temperature rather than the fluctuations is the major factor influencing deterioration of food quality in this range.

In the tests on ground beef, half of the packages were covered with a double butcher wrap of waxed locker paper. The other half were covered with laminated foil using a druggist wrap. Edges on both types of wrap were held down with pressure tape.

## Foil Wrapper Rates High

Results showed there was no deterioration of the flavor caused by fluctuating temperature in those packages wrapped in foil. There was, however, a distinct falling off in quality even when a good quality locker paper was used.

In scoring the ground beef for desiccation as determined by visual observations, there was very little "freezer burn" when foil was used, but there was considerable burn when paper was used and more so in fluctuating temperature than in constant temperature conditions.

Results with ground pork were much the same, the report showed.

Strawberries used in the tests were sugar packed, each container being filled with fruit and sugar in alternate layers, using 230 grams of fruit and 46 grams of sugar. The packaged containers were held at room temperature for 30 minutes in an upright position and for an additional 30 minutes in an inverted position in order to improve the distribution of sugar.

Test scoring showed that there was no significant difference in flavor between fluctuating and constant temperature storage, nor did a fluctuating storage temperature make any difference in the retention of ascorbic acid (vitamin C).

The Kentucky Wonder variety of snap beans tested were cut into 1-in. lengths and scalded in boiling water for 4 to 4½ minutes, depending upon maturity. They were then cooled in iced water, and after draining were packed in a cut type container.

Scores for flavor and color showed no effect due to fluctuating storage temperature, and on the factors of color and ascorbic acid retention there was no difference between the beans stored under the two conditions.

## Flavor, Texture Constant

In conclusion, Prof. Hustrulid declared that the experiments which he and his colleagues have carried out during the last eight years lead them to believe that effects of a fluctuating storage temperature, in itself, are not important on frozen foods below 0° F. for color, flavor, texture, or nutritive value.

It is indicated that the desiccation of the product is increased with poor packaging materials. Associated with the desiccation is a falling off of quality in meats which is probably not due to the desiccation, but to greater oxidation.

In a formal discussion read by Dr. Mary E. Pennington, the following main points were brought out:

Results of these studies showed that there need be no fear of fluctuating temperatures below 0° F.

In the range of storage temperatures from 0° to 20° F., other studies

have shown that there is deterioration. The deterioration will be at approximately the same rate as at a 10° F. constant temperature.

Frozen food packages must be moisture and "vaporproof," not "moisture resistant."

Clarence DuBois pointed out that it is the "high" or "peak" temperature in fluctuating storage temperatures that cause trouble, and that therefore future studies should cover a higher range. (Prof. Hustrulid explained that experiments are now under way on the effects of a fluctuating temperature in the range of 0° to 10° F.)

L. L. Westling of the Matson Navigation Co., who had an interest in the problem of fluctuating temperatures, he said, because shippers of frozen pineapple demanded temperatures of -10° to -15° F., had some comment that touched more on some practical problems of maintaining constant temperatures in the low ranges.

## Central Controls Aid Storage on Shipboard

He asserted that brine systems for shipboard low-temperature refrigeration proved more satisfactory than direct-expansion systems in maintaining constant low temperatures. "Centralized" temperature control, rather than individual control of the various storage areas, also improves constancy of holding temperatures.

Westling pointed out that special (in the storage area) temperatures, are not product temperatures, this especially holding true where latent heat factors are involved.

He pointed out that in transferring quick-frozen products in a 56° F. ambient, temperatures of the outer surfaces of the packages rose only 1° F., and the inner core temperatures showed no rise at all.

## 'Stop the Clock' Video Show Pushes Refrigerator Sales

PHILADELPHIA—The first television promotion of International Harvester refrigerators, intended as an experiment that may set a national pattern, was started here on Dec. 6 by local Harvester distributors.

The program, a half-hour audience participation show, will be televised at 9 p.m. each Monday for 13 weeks. N. Snellenburg & Co. and Elliott-Lewis Corp. are the sponsors.

Called "Stop the Clock," the program will give away merchandise prizes whose value is determined by the length of time it takes a contestant to answer a quiz question.

## Here is . . . SUPERIOR CARBONATION

With the HUDSON Constant Pressure CARBONATOR Only

99.00 complete IMMEDIATE DELIVERY FROM STOCK

May be installed in any sweet water bath, bottle cooler, walk-in box, or in conjunction with Temprite or any other cooling system. When properly installed this unit produces a quality soda water which is unexcelled.

- NO MOTOR
- NO DAMP BASEMENTS
- ENTIRELY AUTOMATIC
- COMPACT—REQUIRES LITTLE SPACE
- NO PUMPS TO PACK
- CONSTANT EVEN PRESSURE
- REQUIRES NO ELECTRICITY

All Orders Shipped F.O.B. New York. For further information Call or Write: INTERSTATE APPLIANCE CO., Inc. 600 Broadway, N.Y. 12, N.Y. WALKER 5-2755-6-7

# KING-SIZE idea for you!


**W**HETHER you make or buy or sell refrigeration equipment, this Santocel idea is important: Greater efficiency with thinner freezer walls! Almost twice the storage capacity in the same cabinet size!

Think of the growing market for this new idea in refrigeration . . . the growing consumer acceptance that advertising and merchandising are building for the Santocel idea. Then think what Santocel would mean to your company as a tremendous new sales factor.

Whiting's a leader with a great new idea . . . that should give you ideas on faster sales in greater markets. For we think Santocel is going to be in as universal demand as safety glass in your automobile.

You can get full technical details about Santocel, also engineering help on adapting Santocel to your manufacturing procedures from Monsanto technicians. Even if you've "looked at" Santocel before, better take another look now, with the public more aware than ever of all its advantages. The handy coupon will bring you quick information about Santocel, Monsanto's silica aerogel.

Santocel: Reg. U. S. Pat. Off.



**MONSANTO**  
CHEMICALS—PLASTICS

MONSANTO CHEMICAL COMPANY  
Merrimac Division, Department ACMB  
Boston 46, Mass.

Please send me full information about Santocel.

Name \_\_\_\_\_ Title \_\_\_\_\_

Business \_\_\_\_\_

Address \_\_\_\_\_

SERVING INDUSTRY . . . WHICH SERVES MANKIND



Are You Looking for An Easy Way to Handle Stoves, Refrigerators and Freezers

Solve Your Problem with the New ROLL-OR-KARI Dual Trucks

Patented Step-On-Lift • Folding Handles  
Capacity 1000 Lbs. • Shipping Weight 40 Lbs.

WRITE TODAY

**THE ROLL-OR-KARI CO.**  
MANUFACTURERS  
ZUMBROTA • MINNESOTA



**Superior**  
VALVES, FITTINGS  
and ACCESSORIES  
For All  
Refrigeration and  
Air Conditioning Systems

**Superior** Valve and  
Fittings Co.   
PITTSBURGH 20, PENNA.

**Kelvinator**  
Cooling Cure for  
Thirsty Throats

Sell the name  
that sells itself...  
with Kelvinator-  
refrigerated Electric  
Water Coolers. Sizes  
and models for every  
requirement. Write.

  
The EBCO Mfg. Co.  
TOWN and LUCAS STS.  
Columbus 8 Ohio

**MARSH**  
Pressure Gauges  
Dial Thermometers

★The gauge with the  
Recalibrator

Ask for this New  
Refrigeration Booklet

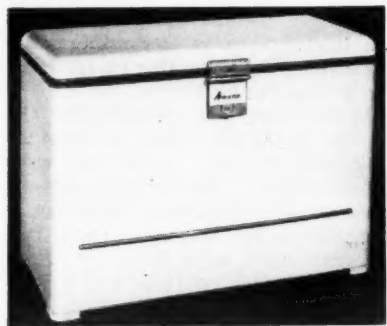
JAS. P. MARSH CORP.  
Dept. O, Skokie, Ill.

## What's New

### Amana '110' Freezer Has Hidden Temp-Control

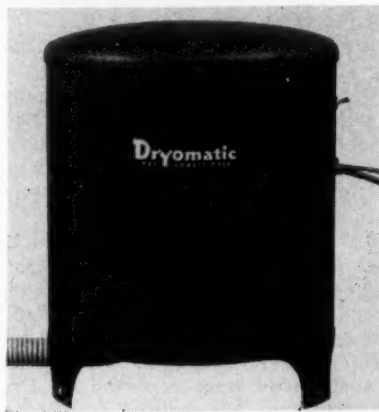
AMANA, Iowa—A new model 110 home freezer of 10-cu. ft. capacity is now on the production lines of the refrigeration division, Amana Society here, George C. Foerstner, head of the division, has announced.

New "advanced design" features on the 1949 model include a hide-



away temperature control, a cylinder-type built-in lock on the latch, a new escutcheon design with built-in temperature indicator, leveling gliders on all four corners of the cabinet, a raised height of 39 in., and a full opening lid.

The model 110 cabinets are all steel, electrically welded, and Bond-erized before receiving a double coat of white Dulux enamel, according to Foerstner.



### Dryomatic Takes Moisture From Air, Needs No Drain

BALTIMORE—A Dryomatic Dry Conditioner, which will automatically remove moisture from the air of a room of up to 5,000 cu. ft. and hold the relative humidity at a pre-determined level, is being manufactured here by the Dryomatic Corp. of America.

In a room of this size, a Dryomatic unit can hold a dewpoint of 0° F. and a relative humidity of 15%, the company claims. Batteries of the units are effective up to 300,000 cu. ft., it added.

Moisture removal is at the rate of 1 gal. per day at 70° F. and 50%

### Hose Speeds Difficult Charging, Purging Jobs

CHICAGO—Jarrow Products, manufacturer of refrigerator door gaskets and refrigeration servicing equipment, has introduced a new "Speed-Angle" charging hose, designed to speed up the work of charging and purging refrigerating systems.

Incorporating an "innovation" in coupler design, the "Speed-Angle" is

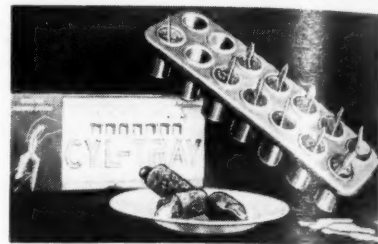


said to eliminate sharp right-angle bends and to be suited to all applications where space at the service valve is limited. No flexing is required in making the connections, according to Jarrow.

The quick couplers are of patented design, featuring a tight-sealing rubber gasket entrenched in a machined groove. The gasket cannot blow out, yet it is easily replaced in a matter of seconds, it is claimed.

The hose is tested to withstand 600 lbs. pressure. Over-all length is 30 in. Exact replacement couplers and washers are available from authorized wholesalers of Jarrow Products.

### Refrigerator Tray Makes Cylindrical Ice Cubes



UNADILLA, N. Y.—An ice tray for domestic refrigerators that produces 14 ice cylinders 2 in. long and 1 in. in diameter at one time has been introduced by the Brooks Machine Products Co. here.

The "Cyl-Tray," as the new device is called, is designed to fit the double tray compartment and the large freezing unit of a domestic refrigerator, according to Ivan S. Bailey, sales manager. It is intended to supplement, not replace, the normal ice tray, he said.

The tray, made of aluminum, measures 11 in. long, 3 1/2 in. wide, and 2 in. deep. It contains 14 individual cups in which the ice cylinders are formed.

Each cup rests on a small tip that makes removal of the tray easy after freezing.

Bailey pointed out that the cylinders are particularly suited for use in thermos bottles and for ice bags. Their more obvious use is the making of iced confections for children. One or 14 different flavors can be made at one time.

The ice cylinders can be removed from the cups one at a time, if desired, by warming the individual cup, Bailey said.

Suggested retail price for the Cyl-Tray is \$2.75 each, slightly higher west of the Mississippi and in the South, he asserted.

In addition the company provides Cyl-Tray handles for making frozen sweets. Fourteen of these wooden handles are packed free with each tray. Additional handles sell for 35 cents per hundred.

Cyl-Trays, packed two dozen to the carton, are available for immediate delivery, according to Bailey.

### 'New Metal' Bonds with Wood, Glass, or Fabric

CLEVELAND—Howard Paint Division of Reconditioning Products, Inc., here announced it is entering the consumer field with a new package combination of Howard "New Metal and Solvent" for miscellaneous home repairs.

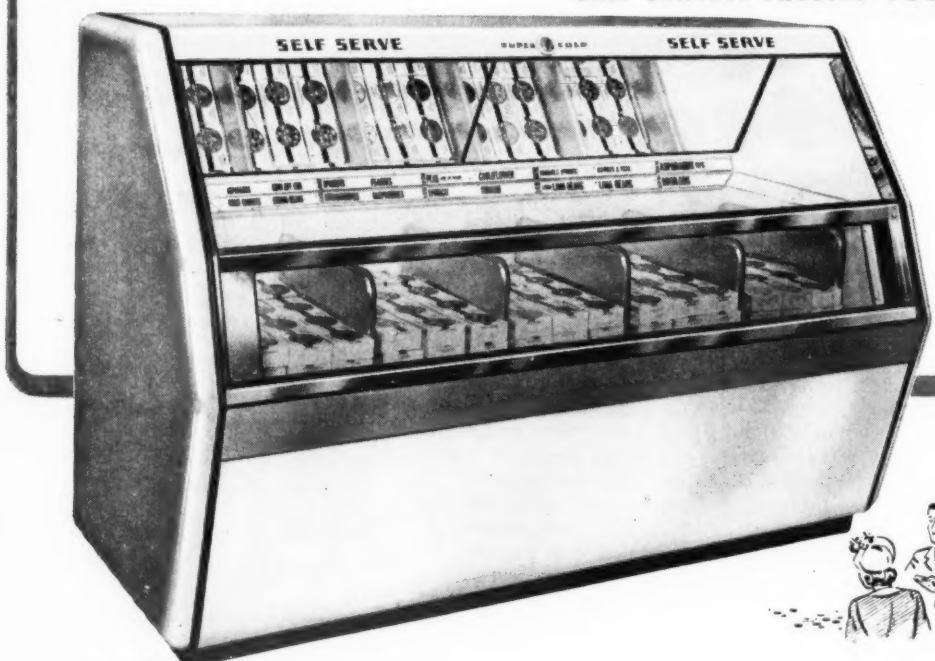
No heat, flame or special tools are required in the application of New Metal, according to the company. The solvent is furnished to maintain the New Metal in the right consistency for applying with a putty knife, paint brush, or paint sprayer.

New Metal is said to dry in minutes to a "harder-than-lead" permanent bond with steel, aluminum, wood, glass and fabrics. Acting as a permanent filler for dents, cracks, scratches, etc., it can be filed, ground, or sanded for taking a smooth paint or lacquer finish, the firm claims.

The package contains a 6-oz. can of New Metal and a 2-oz. bottle of New Metal solvent. It retails for 75 cents.

## IT'S NEW! THE SUPER-SERV

SELF-SERVICE FROSTED-FOODS DISPLAY CASE



DESIGNED  
RIGHT...

ENGINEERED  
RIGHT...

BUILT RIGHT...



It's another "tops in Food Refrigeration" from out of the West—a frozen food Display case that has "sellability" in every inch. Look at those smart lines—the shopping-level height—the eye-catching mirror that multiplies and accentuates the beautiful colors of frozen food packages! Here in the new SUPER-SERV are all the features

you wanted in a frozen food case—PLUS labor saving design, divided well space to aid in food-type segregation, and easy in-line conversion for adding extra units.

Yes, this new case from out of the west has all the features to help you sell more with least effort.

### THE SUPER-COLD CORP.

General Offices: 1020 E. 59th St., Los Angeles 54, Calif.  
NEW YORK—NEWARK—NEW HAVEN—HOUSTON—  
DALLAS—OKLAHOMA CITY—PORTLAND—CHICAGO—  
PHILADELPHIA—NEW ORLEANS—TULSA  
Distributors in all Principal Cities

NOTE: Inquiries from out of U.S.A. should be addressed to: International Division, or use Cable Address, "Supercold."

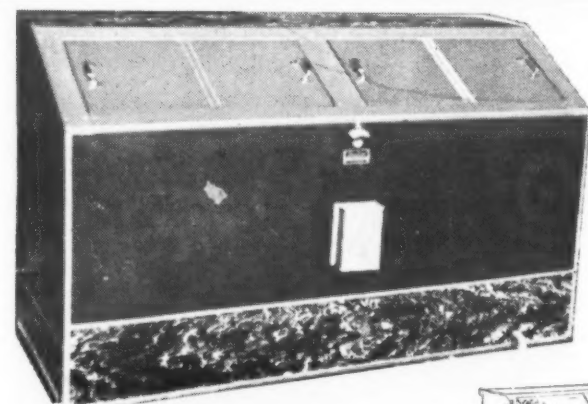
### TO THE TRADE

The new SUPER-SERV is one of the many advanced designs which have been in Plans and Testing in our Los Angeles Plant since the war. It is symbolic of this fact: though the Super-Cold Corporation is over a quarter-century old and has pioneered major improvements in commercial refrigeration, which are now considered standard throughout the industry, WE ARE YOUTHFUL IN OUR OUTLOOK "in going places." A part of our idea franchise we have ever offered and a real opportunity for responsible, experienced dealers. Why not write NOW for complete details about a SUPER-COLD Franchise. Just mail the convenient coupon below.

**SUPER-COLD**

GUARDIAN OF  
Flavor  
Appearance  
Purity

COMPLETE FOOD STORE REFRIGERATION UNDER ONE GREAT NAME

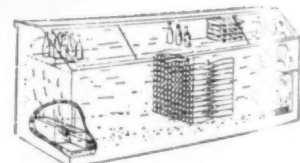


Patented  
No. 2,442,719

Zero Plates as cold as  
6 degrees below

**ZERO**

With air at BLIZZARD Speed, Cools  
Beverages faster than any other cooler.  
Yet a control keeps the beverages at  
the exact desired temperature.



34 case complete with  
1/2 compressor unit  
List \$736.50

Dealers Wanted

Manufactured by

**ZERO-PLATE CO.**  
1400 S. HASKELL AVE.  
DALLAS, TEXAS

**JOE BOOTH CO.**  
901 COLLARD ST.  
FORT WORTH, TEXAS

GET FULL INFORMATION ABOUT THE  
NEW SUPER-SERV BY SUPER-COLD NOW!

Send for free literature by mailing  
this coupon today, to:

The Super-Cold Corporation  
1020 E. 59th Street, Los Angeles, Calif.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_



## What's New (Cont.)

### New Lindeman & Hoverson Electric Range Offers '5,000' Super Oven with Automatic Temp. Control



The new Ardmore electric range has two surface units on each side and all switches and controls on backguard.

MILWAUKEE—A. J. Lindeman & Hoverson Co. here, has introduced its new Ardmore model 8836A electric range, featuring the "5,000" Super Oven with automatic temperature control and two units to provide even heat.

The new range has a one-piece, wrap-around body and a one-piece top with two surface units at each side, consisting of two 1,250 Mono-tube units, one 2,100-watt unit, and

a six-quart cooker, according to the company.

The porcelain broiler with a smokeless tray is said to be waist high and non-tilt.

All switches and controls are centrally grouped on the backguard, beyond the reach of children. The range is completely porcelain enameled inside and out and Fiberglas insulated, the manufacturer claims. Lamp and time control are optional.

### AM 'Mono-Motors' Feature Sealed Oil Reservoir

OWOSSO, Mich.—A new line of 4-pole, shaded-pole, single bearing motors, in models up to 9 watts output, is announced by Redmond Co., Inc. here.

Designated as type AM and presented under the trade name "Mono-Motors," the new low-range power units were developed for refrigeration, air conditioning, heating, ventilating, and other single-bearing motor applications, according to the manufacturer.

Design features of the new Mono-Motors include a large oil reservoir isolated from heat and permanently sealed, plus a special inorganic packing said to combine high oil-holding capacity with the ability to release oil readily as required for improved lubricating action.

Forced-feed lubrication of bearing surfaces is achieved by means of a spiral pump incorporated on the shaft. A cone and slinger, oil catcher, and oil return ducts are included in the design in order to permit recirculation of lubricant back into the reservoir.

Length of the single bearing is said to be an important factor in maintaining accurate shaft alignment and free running rotor. The high-pressure die-cast aluminum rotor is held to position in the field area by magnetic forces, minimizing end thrust.

Stator windings are impregnated with a humidity resistant varnish. The cast-iron case features functional fin-line design to accelerate dissipation of heat, the manufacturer claims.



### Custard King Freezers Have Up to 60 Gal. Capacity

NEW YORK CITY—Two new Custard King Freezers which will permit up to 60 gals. of automatic and continuous production of soft ice cream custard or frozen milk have been introduced by Carvel Corp. here.

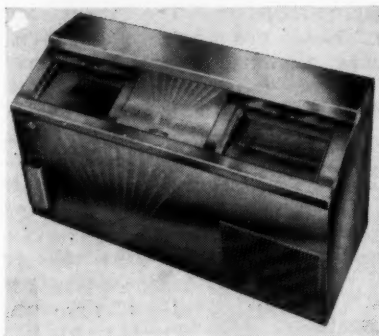
According to E. P. Newins, sales manager, the new models will not take up any more room than the single-headed models.

One of the new units is designed with a built-in refrigerated mix compartment directly under the freezer head to hold six 10-gal. cans of mix at 37° F. This will permit the operator to have refrigerated mix at the point of sale at all times, Newins said.

All five of the company's freezer models are of the automatic and continuous type designed with the smallest diameter freezer barrel manufactured in any point of sale freezer to date, Newins declared.

Paddle speeds of up to 555 r.p.m. permit capacities from 5 gals. to 60 gals. per hour, he noted. All models have the full flooded pressure type freezer barrel permitting more efficient evaporation of refrigerant.

### Beverage Cooler Available With Black Morocco Body



CLEVELAND—Champion dry beverage coolers, formerly available in stainless steel exterior only, can now be obtained in a black morocco body with the entire slant top and doors of stainless steel, the National Cooler Corp. has announced.

The company said that this new version was introduced to meet the low-price demand for the coolers.

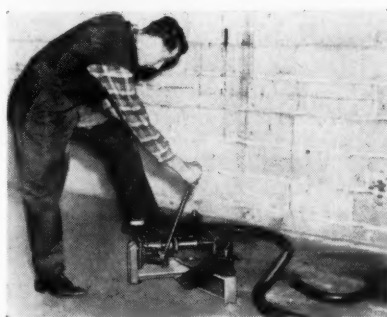
Both versions of the cooler are now available in self-contained models, the company added.

9 in. high. Three gallons of water are provided for immediate use.

To speed up cooling action and reduce cost, this cooler uses waste cooled water to pre-chill incoming water. The waist-high bubbler and bubbler valve have been combined into a single unit which is operated either by push-button or foot control.

An automatic thermostat switch holds the temperature within a narrow range, while a control dial enables the user to regulate the temperature.

### Lightweight Pipe Bender Handles Many Sizes



NEW YORK CITY—A new lightweight portable hydraulic pipe bender is being distributed by Electric Cord Co., 30 Church St. here.

It is called the "Lightweight Champ," because the combined weight of the jack and frame is only 83 lbs., yet it bends standard pipe and conduit sizes up to 2½ in.

Use of this tool eliminates elbows, fittings, wrinkles, and fractures, and makes heating and filing unnecessary. Price is \$125, including dies.

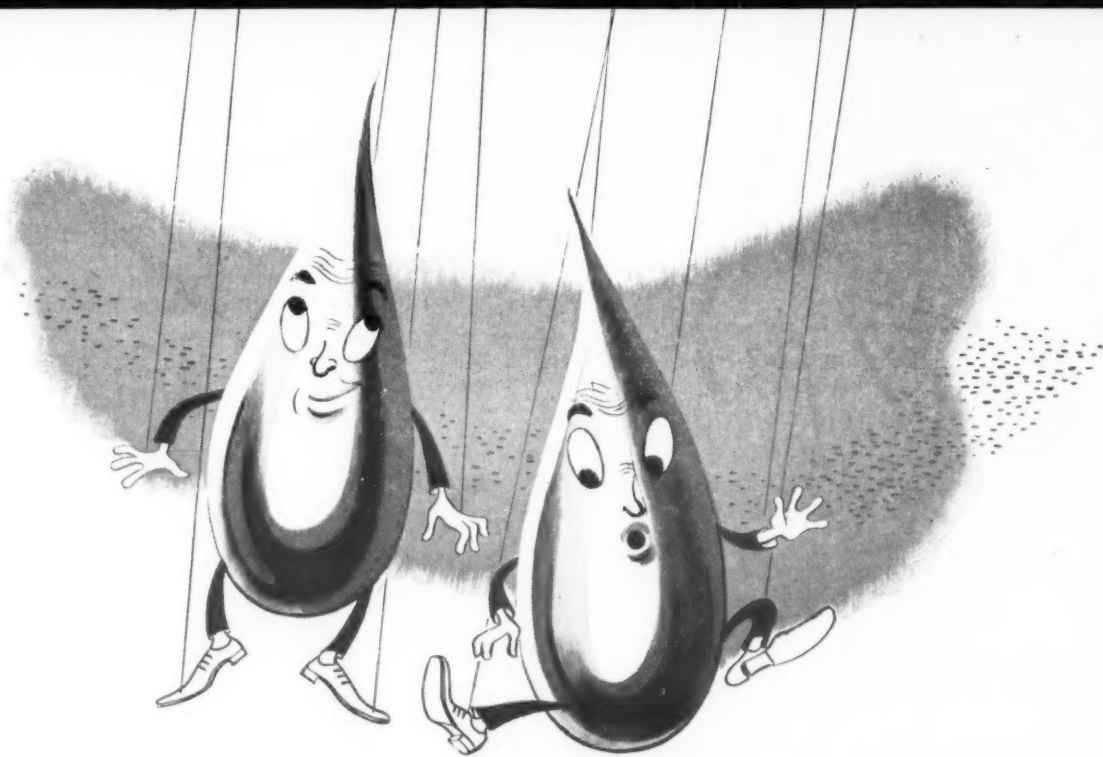
### Frigidaire Water Cooler Utilizes Waste Supply

DAYTON, Ohio—Delivering up to 30 gals. of water per hour, a new compact water cooler is now being made by Frigidaire.

The new unit, one of a series of six streamlined models, requires only 2½ sq. ft. of floor space and stands 3 ft.

## Thermopane

# ..makes HUMIDITY CONTROL EASIER!



Where large glass areas are used and where humidity control is important, *Thermopane*\*, the double-glass windowpane with the insulation sealed in, helps keep water vapor where it belongs . . . suspended in the air. That means your equipment can operate at peak efficiency.

For summer air conditioning, *Thermopane* does an equally valuable job. The insulating qualities of *Thermopane*, with ¼" air space, cut the influx of convected and conducted outside heat to only .61 BTUs per square foot, hour,

degree temperature. In addition, the amount of sky and solar energy passing through *Thermopane* is approximately 10% less than through single glass.

It makes satisfied customers to recommend *Thermopane* windows for every job you install. For further information and complete data on this remarkable windowpane, write for Don Graf's Technical Sheets on *Thermopane*. Libbey-Owens-Ford Glass Company, 17128 Nicholas Building, Toledo 3, Ohio.



ONLY LIBBEY-OWENS-FORD MAKES *Thermopane*



**LIBBEY-OWENS-FORD**  
a Great Name in **GLASS**

### The Low-Temp Patrolmen!



TRACE spots leaks . . . present or future. Its vivid stay-red color indicates them plainly. Add it to any refrigeration system and be ready for the red signal.

BOTH ARE ESSENTIAL TO REFRIGERATION MAINTENANCE

THAWZONE, in new, reconditioned or old systems, has a two-fold purpose: (1) To destroy moisture already present. (2) To safeguard against future trouble in systems now operating satisfactorily.

**HIGHSIDE CHEMICALS COMPANY**  
195 VERONA AVE., NEWARK 4, N. J.



## FOR ECONOMICAL OPERATION



on your next job choose a

MILLS

a condensing unit for  
every installation

Mills Industries, Incorporated • 4100 Fullerton Avenue • Chicago 39, Illinois

Wall WIRE  
PRODUCTS COMPANY

PLYMOUTH • MICHIGAN

Makers of

REFRIGERATOR SHELVES • STAMPINGS  
FORMED AND WELDED PRODUCTSWith open capacity for  
50 to 100 ton press  
work, we solicit  
your stamping inquiries.Tracy Appoints Manager  
For Southwest Region

PITTSBURGH—The Tracy Mfg. Co. here has recently appointed James A. Bertha as regional manager for the southwest region, according to Marvin S. Bandoli, vice president in charge of sales.



James A. Bertha

Bertha will supervise in the southwest area the sale of Tracy customized kitchens, a complete line of steel kitchen cabinets with sinks in lifetime stainless steel and deluxe porcelain.

Making his headquarters in Houston, Bertha will cover Texas, Louisiana, Mississippi, Arkansas, and New Mexico.

Bertha is widely known in the Southwest as a manufacturer's representative. He has been sales manager of a Texas wholesale distributor, district manager with the Kelvinator Div. of Nash-Kelvinator Corp., and more recently held a similar position with the Victor Adding Machine Co.

## Fair Trade Guide Issued

NEW YORK CITY—"A Practical Guide to Fair Trade Laws" has been published by the American Fair Trade Council, John W. Anderson, president, has announced. He said that orders for the book can be mailed to 11 E. 44th St. here.

Survey Shows Need To Shift Store Hours  
To Aid Those Who Can't Shop During Day

NEW YORK CITY—Should appliance retailers shift their store hours to later openings and/or closings in order to accommodate the needs of their prospective customers?

That problem, which faces all retailers alike, was surveyed by the *New York Times* recently when it presented the thinking of some retail authorities on the considerations involved.

Four reasons were listed by the *Times* in favor of the retailer adjusting his day to later hours and providing more night shopping hours for the public. These reasons are:

1. A greater number of married couples are working now than ever before, thereby limiting their daytime shopping hours.

2. An extremely high birth rate since the war has made it difficult for non-working wives to shop during the day.

3. Men are playing a more important part in selection of merchandise and seldom have time during regular store hours to shop with their wives.

4. Housing decentralization makes shopping in downtown stores during regular hours inconvenient for many people.

The paper warned retailers not to expect a sudden increase of sales just because they have adopted late hours. It pointed out that although the value of later hours must be decided by the "plus" business over and above night operating costs, it must be remembered that a certain percentage of evening business is being drained from regular daytime business.

"In other words," the paper said, "it is not excess business but only business shifted to a more convenient hour for the consumer. However, even this business has value to the store in the form of creating goodwill."

The *Times* quoted one retail executive as follows:

"In many discussions of night openings the computation of the actual cost of such an opening is erroneous. Many of the expenses of a store do not increase with a change in store hours. This is true of depreciation, rent, taxes other than income taxes, certain forms of advertising, window display, dues and donations, executives' salaries, unless tied to sales or profits."

"Certain functions such as receiving, marking, accounting, housekeeping, and general office work would not have to operate during evening hours any differently than under present hours."

This retailer also stated that many consumers who most need shopping hours better suited to their working hours have lost touch with stores where they would shop under different conditions.

Therefore, he cautioned, stores that increase their hours or adjust them to later periods must not expect immediate sales jumps. They must rather expect a steady increase over a period of a year or more.

Employees Honor A. F. Schultz  
At 35th Anniversary Dinner

ERIE, Pa.—The 35th anniversary of the Arthur F. Schultz Co., appliance firm, was marked recently by an employees' testimonial dinner to Arthur F. Schultz, its founder. The employees presented Schultz with a plaque as a token of their esteem. James Blair, manager of the new Schultz branch store, served as chairman.

Holmes Buys Portland, Me.  
Music, Appliance Store

PORTLAND, Me.—Herbert S. Holmes of Portland has purchased Cressey & Allen, one of the oldest piano, music, and home appliance concerns in New England.

Holmes became president and treasurer of the 68-year-old firm, effective Dec. 2. Frank C. Allen former president, retired but all other personnel was retained.

Bendix Home Laundry Show for High School Classes  
Results In Sales to Parents, Distributor Reports

GRAND RAPIDS, Mich.—A fast-moving, dramatically pitched Bendix home laundry show for high school home economics classes has been staged in dealers' stores in western Michigan with good results, according to Republic Distributing Co. here, distributor for Bendix Home Appliances, Inc.

"We show our dealer that not only will such a series of demonstrations in his store produce future business, but when handled properly, they furnish him with an immediate list of 'hot' prospects," said Arnold Ver Lee, wholesale salesman.

A 50-minute session of a high school home economics class is scheduled in a dealer's store following a conference between the dealer, the distributor's wholesale salesman, and the superintendent of schools. In rapid-fire succession, the following program is carried out by the visiting salesman and the distributor's home service director.

Introduction, 3 minutes; washer demonstration, 10 minutes; ironer demonstration, 10 minutes; dryer demonstration, 7 minutes; quiz, 5 minutes; drawing of three door prizes, serving of refreshments, and announcement of rules for a contest on the best theme written about the Bendix home laundry show, 10 minutes, or balance of allotted time.

From the students, the dealer obtains the name and age of the washers in their homes and learns whether the homes have dryers and ironers. Bendix automatic home laundry folders are handed out at the end of the program.

In the themes, the students proved they "didn't miss a thing," said Ver Lee.

Winning compositions in several instances were published on the front page of the local newspapers. Themes usually are judged by the home economics and English teachers.

One high school, in making the awards to winners in the composition contest, called it the Bendix Assembly, and invited the dealer to deliver the \$10, \$7.50, and \$5 cash prizes.

Participating dealers—Gores Stores at Otsego, Lawrence Appliances at Hastings, and Hunn Appliances at Owosso—reported five Bendix automatic washer sales and three Bendix ironer sales immediately attributable to the promotions.

At Otsego, the dealer reported a student came in with her mother the next noon. This interrupted the mother's trip to another city where she intended to buy a competitive brand ironer. Instead, she bought the Bendix. Within three weeks, a friend of this woman purchased an ironer on her recommendation.

In the Heart  
OF DETROIT

FACING GRAND CIRCUS PARK

The Tuller, a modern hotel for those who want the best! Convenient to Offices, Theaters, and Shops. Friendly, courteous service and real Hotel Comfort. The Tuller Coffee Shop or Cafeteria for your Dining Pleasure at modest prices. It pays to stay at Hotel Tuller.

VISIT OUR  
COCKTAIL LOUNGE  
ONE OF DETROIT'S FINEST

800 ROOMS \$2.75  
WITH BATH FROM

HOTEL

TULLER

RICHARD C. HODGES, Mgr.



# Artkraft

## HITCH YOUR FUTURE TO THESE STARS!

### INVESTIGATE OUR STARTLING NEW KEY DEALER PLAN

#### ON THE Artkraft\* BEV-LINE

##### OF SPECIALTY REFRIGERATION PRODUCTS

BEV-ETTE

BEV-COOL

BEV-GIANT

BEV-FOOD

FARM GIANT

**BEV-COOL**  
A bottle cooler that can be operated either wet or dry.

**BEV-FOOD**  
The only combination beverage and food cooler—can be operated wet or dry.

**BEV-ETTE**  
The personal refrigerator designed especially for executive and professional offices. Nationally advertised in leading magazines; *Esquire*, *New Yorker*, *Town & Country*, *Business Week*, *Sunset*, *Sales Management* and *Geyer's Topics*.

**BEV-GIANT**  
A mammoth bottle cooler that can be operated wet or dry.

**FARM GIANT**  
Utility food refrigerator, produce holder and milk cooler. 16 cu. ft. Cools 20 gal. milk. Moist cold refrigeration.

Send coupon today for full details on our  
KEY DEALER PLAN

## REGIONAL MEN—ATTENTION!

Good regional men write today for details  
on remaining open territory.

Artkraft\*

MANUFACTURING CORPORATION  
200 Kibby Street Lima, Ohio, U. S. A.

\*\*\*\*\* Artkraft\* is producing  
this fine line  
of SPECIALTY REFRIGERATION at "MOST CUBIC FEET PER  
DOLLAR" low prices, backed by an aggressive national  
advertising campaign in over 20 magazines, to net you  
BIG PROFITS!

## THIS COUPON FOR YOUR CONVENIENCE

Artkraft\* MANUFACTURING CORPORATION

200 KIBBY STREET

LIMA, OHIO, U.S.A.

☐ Please send full details on Artkraft\*  
Key Dealer Plan.

NAME .....

FIRM .....

STREET .....

CITY .....



\*Trademark Reg. U.S. Pat. Off.

QUALITY PRODUCTS FOR OVER A QUARTER CENTURY



## EET Sets 15th Conference For April 5-7 In Chicago

NEW YORK CITY—The 15th annual sales conference of the Edison Electric Institute will be held at the Edgewater Beach hotel, Chicago, on April 5-7, it has been announced by Harry Restofski, chairman of the Institute's commercial division general committee.

Sales of electric power and appliances in the residential, industrial, commercial, and rural markets will be discussed in four separate meetings on Tuesday, April 5th, which will be sponsored by the respective sections of the EET commercial division.

The conference General Sessions will be held on Wednesday, April 6th, and in the morning of April 7th. The conference will close with a luncheon meeting on April 7th.

Electric companies and individuals with outstanding records in 1948 in the fields of electric cooking promotion, home service and farm electrification activities will receive prize awards at the conference, Restofski said.

The George A. Hughes Awards, for electric cooking promotion; the Laura McCall Awards, for home service activities; and the Thomas W. Martin Award, for the most successful farm electrification program will be presented at the meeting.

**DEALERS:** Here is an immediate delivery ice cube maker that will almost sell itself on the economy angle alone. Advertisement below is one of a series of your prospects will be reading in national publications. We furnish complete literature to help you sell. Ask about territories now open.

**SAVE UP TO 90% on ICE CUBE COSTS**



**Northwest ICE CUBE MAKER**

**Saves Money**—average cost per bushel (400 cubes) is 7c. What do you pay? **Freezes Faster**—2 to 5 freezes per day varies with humidity and temperature conditions. **Cuts Shrinkage**—special cabinet design maintains sub-zero cold in storage compartment even when door is open. **Freezes Colder**—sub-zero cubes mean colder beverages, more economy because cubes last longer in drinks.

**ICE CUBES Unlimited with TANDEM INSTALLATIONS**

No limit to ice cube production with Northwest. We plan a multiple installation to occupy minimum floor space.

**FOR INSTITUTIONS** requiring uninterrupted twenty-four hour service.

**FOR BARS AND CLUBS** fits under any standard bar—economical, time-saving.

**FOR RESTAURANTS** no cold loss despite frequent opening of cabinet.

**FOR HOTELS** supplies continual demand for room service and dining rooms.

**—1949 MODELS—**  
Immediate Delivery  
**JUNIOR SERIES**—210 cubes each freeze 1 bu. storage (600 cubes)  
**SENIOR SERIES**—336 cubes each freeze 3 bu. storage (1,200 cubes)  
**JUNIOR SERIES**—Junior with 3 bu. storage Senior with 5 bu. storage  
Self contained or remote compressors

SEE YOUR NEAREST DEALER, OR WRITE  
**Northwest EQUIPMENT COMPANY**  
3021 5th Avenue So. Minneapolis 8, Minn.

## Blast In Store Destroys \$6,000 In Appliances

SALT LAKE CITY, Utah—More than \$6,000 worth of electrical appliances, refrigerators, and supply parts went up in smoke when a blast occurred in the showrooms of the Dodge Appliance Co., here Nov. 29.

A. Newell Dodge, owner of the firm, said the cause of the blast was a leaking gas stove.

He said that he had less than \$2,000 insurance on the destroyed merchandise.

## Sales Rise as Patrons See 200 Cases of Cold Beer

DENVER—A huge walk-in refrigerator, which will accommodate more than 200 cases of beer chilled to 35° F., has produced a beer sales volume of around 150 cases per day the year-round, according to Mrs. Billie Allen, owner of the Unique Liquor Store, at 3126 W. Alameda Ave., here.

The big refrigerator, painted white inside and out, has four clear-glass, reach-in doors at the front, which project into the store interior.

On one side are metal shelves on which broken cases of beer are set. Cans and bottles show a dozen popular brands. The interior of the case is kept brightly lighted, so that customers standing at the counter may see through the beer displays to the tremendous stacks of cases behind.

"While we may not sell beer to each customer who comes in, each sees at a glance that we keep large quantities of properly chilled beer on hand. We get a lot of follow-up telephone order business from this," Mrs. Allen said.

## Eugene Wall Heads Dealer Group In Huntington County

HUNTINGTON, Ind.—Eugene Wall, of Lee-Wall Co., appliance dealership, was elected president of the Huntington County Appliance Dealers Association at a meeting of the board of directors recently.

Other new officers are Charles Fordyce, vice president; Robert Brennan, secretary; and Harry Copenhagen, treasurer.

Jack Ackerman, of the Public Service Co. of Indiana, Inc., announced that plans are progressing for a sales training course for employees of association members, to start in mid-January. Representatives of the utility are scheduled to lecture.

## Sherer-Gillett Booklet Gives Specs on Reach-In Models

MARSHALL, Mich.—The Sherer-Gillett Co. here has published a 16 page booklet illustrating and giving the specifications of its complete line of reach-in refrigerators, including the Retardo for bakers.

Copies of the booklet may be obtained by writing the company for their form No. 29 booklet, or it may be obtained from local distributors for the company.

## G-E Freezer Plant Turns Out 200,000th Cabinet Since War

ERIE, Pa.—The 200,000th cabinet, produced by the home freezer division of G-E's Erie Works since the war, rolled off the assembly line in Building 63 recently.

The occasion was celebrated by an impromptu party of home freezer members during the noon hour.

Included in the 200,000 units are cabinets for 4 and 8-cu. ft. freezers and cabinets for refrigerators of 4-cu. ft. capacity.

## Investment of Hard Work on Promotion, Selling the Need Will Pay Off In Freezer Sales, Dealer's Experience Shows

DENVER—If a dealer will invest some good, hard work in his promotions and "sell the need" for them, he can sell as many home freezers as any other appliance in his store, William Edmondson, sales manager for the Denver Appliance Co. here, has found.

"Our experience since 1946 has been the same as that encountered by appliance dealers in other parts of the country," Edmondson said.

"We had utilized the usual types of newspaper promotion, and store displays, made arrangements with the local utility to help us in our promotion, and carried publicity in magazines, but still freezer sales were below par."

### FIND OUT WHAT PEOPLE KNOW

When a check of his ledger showed him just how weak home freezer sales really were, then Edmondson, along with J. H. Huggins, head of the firm, decided that something must be done.

The first thing Edmondson and Huggins did was to go out into the community and call on people to find out just what they knew about home freezers.

"We discovered that homeowners, busy with their own problems of making a living, knew little or nothing about the home freezer and its advantages," Edmondson said.

"Therefore, we realized that the thing to do would be to make people understand how much they needed them and what benefits they would obtain from them."

Edmondson recognized the fact that to "sell the need" entailed more demonstrations to familiarize the public with the freezer, more publicity, and installations in homes to which prospects could be referred.

### NEEDS FRESH AIR SALESMEN

In addition, more house-to-house canvassing and outside calls in the farm districts would have to be added to the store's schedule.

Therefore, Edmondson began setting up an outside selling organization. Two men on his six-man outside crew were sent to a home freezer distributor school until each man became an expert on the subject.

These two then passed along the information they had gleaned to the other four at formal sales-training meetings, held in the store once each week.

Each man was given a suburban district as the most productive sales territory, and was instructed to acquaint residents with the advantages of the home freezer.

"Our men teach each and every one they call on just what the home freezer can save for him, how it can work for him, etc.," Edmondson said.

## Admiral Corp. Board Declares Stock, Extra Cash Dividends

CHICAGO—The board of directors of Admiral Corp. recently declared a stock dividend and an extra cash dividend, in addition to a quarterly dividend, according to announcement by Ross D. Siragusa, president.

The stock dividend was based on one share of common stock for every nine shares outstanding. The extra cash dividend amounts to 25 cents per share on all common shares outstanding, and is in addition to the quarterly dividend of 15 cents per share.

Each of the dividends will be payable Dec. 31 to stockholders of record Dec. 18.

"From present indications, Admiral sales for the fourth quarter of 1948 will approximate \$25,000,000," Siragusa said. "This is an all-time high for a quarterly sales report."

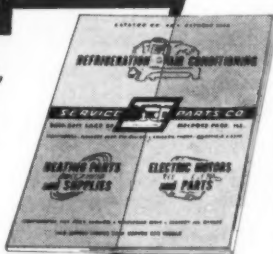
## ANYTHING AND EVERYTHING YOU NEED

... in Refrigeration, Air Conditioning, Heating Parts and Supplies ... selected from our complete stocks ... the same day your order's received ... by competent experienced men. A can't-be-beat time and money-saving help for you!

THE SUPPLY HOUSE THAT SERVES THE WORLD • Wholesale Only

**SERVICE PARTS CO.**

2511 2611 LAKE STREET MELROSE PARK, ILLINOIS



Send for catalog today!

"They do this whether they make a sale or not. This missionary work will, we feel, eventually 'sell the need' of the homeowner for a home freezer."

At the same time, in early 1948, clever slogans on home freezers were carried in newspaper display advertising, on banners draped across floor model home freezers, and on store windows.

Each slogan presented a different aspect of the home freezer, for as Edmondson put it "one or another of our slogans will catch the attention of every person we hope to reach."

Therefore, the home freezer showroom window constantly displayed signs which carried such messages as "Mountain Trout on New Year's Eve"—"Planned-over meals"—"Save time, steps, and money"—"The Deer season is here"—"Eliminate Canning."

### USES CATCHY BANNERS

The slogans were slanted to catch the interest of sportsmen, housewives, and economy-minded people.

"And they are getting results," Edmondson said. "The slogan about canning has brought in many housewives who passed our store, and stirred up enough interest that they interested their husbands in purchasing the freezer for them."

"Hunters have been sold home freezers, because they remember an incident where a whole elk or deer carcass was lost because of improper refrigeration facilities."

Shortly after instituting the slogan program, together with the outside calls, Denver Appliance Co. staged a "Home Freezer School" in June and a contest to run for a week.

The company offered as a prize a new 6-cu. ft. home freezer for the best and most original 25-word completion to the sentence "I would like a home freezer because..."

Newspaper display advertisements were used to extend an invitation to the public to attend a demonstration of Kelvinator home freezers, which brought out from 150 to 250 women. A complete demonstration of the home freezer was given, pointing out the savings possible with large-order

purchases, convenience, and out of season foods.

Out of all the contest entries, 150 were considered for the final competition—thus supplying the company with enough slogans to last for a long time to come.

The winning slogan was written by an enterprising Denver housewife who finished the sentence by stating "because it adds hardy-preparedness to everyday cooking, subtracts hours of shopping, multiplies money by 'best season' buying; divides cooking drudgery by safe-keeping cooked ahead meals."

### EXPLOITS WINNING SLOGAN

Edmondson thought this slogan based on addition, subtraction, multiplication, and division extremely clever, and uses it in both newspaper advertising and on window banners and posters.

Company salesmen called on each customer who entered the slogan contest, and a home freezer sales volume larger than that of any other appliance in the store was the result.

The Denver company's home freezer cooking school was followed by other such schools under the auspices of the Colorado Public Service Co., several Denver department stores, and other appliance dealers.

"Our salesmen are following up leads furnished by the contest, as well as just ringing doorbells," Edmondson said, "and are getting results. Almost every housewife who has purchased a home freezer gives us the names of two or three more prospects. We have made more outside calls than we have ever made in the past."

With the selling slogans catching the attention of passersby and salesmen familiarizing prospects with the advantages of the freezer, the amount of drop-in traffic has almost tripled, according to Edmondson.

The store keeps two models freezing large quantities of foods, each package marked with the per-pound price and the quantity price.

Thus, by "selling the need" with its active merchandising campaign, the Denver Appliance Co. has brought home freezer sales up to a par with other major appliances in the store.

## No Better Time Than NOW To Build Locker Plants

Building costs are NOT coming down much, if any. But people ARE getting more saving conscious and NOW is the time to build locker plants or sub plants and profit by this trend. If locker rentals can't be increased much—service charges can (without too much complaint because the saving is conclusive). Locker plants are and can be made profitable by following this public trend. Be sure to equip with



## MASTER FOOD CONSERVATORS

The modern locker units for economical operation. They're the choice of the Industry. They fulfill every requirement you need and require. Don't just buy lockers—demand MASTER "The spark-plug of the Industry."

### Write for particulars

Safeguard your investment by getting the facts about MASTER, before you buy any locker. Write today for the facts also about immediate delivery.

Endorsed by and sold through distributors of refrigeration and insulation.

**MASTER MANUFACTURING CORP.**  
121 Main Street  
Sioux City 4, Iowa, U. S. A.

Member of Frozen Food Locker Institute, organized for your protection.

Over 1,500,000 Master Food Conservators in Use





## Brazilian Refrigerator Enterprise Indicates U.S. Producer Must Watch Export Market

By Eugene Hesz, International Market Analyst

**Editor's Note:** Mr. Hesz interrupts his series of articles on the various areas of Brazil to describe operation of the first Brazilian factory manufacturing complete refrigerators, the National Motor Factory, and its significance to American manufacturers.

In our study on Brazil, the attempt is being made to show the interesting development of a young American country which is urgently demanding modern machinery and appliances for its growing industries, for better distribution methods, and particularly for better preservation of its products.

The demand for equipment from the American air conditioning and refrigeration industry is actually far greater than can be supplied. The main reason for this fact was shown to be the lack of sufficient foreign exchange, which will only slowly improve.

The logical conclusion to be reached from such a condition is: what can be done to improve this situation and, as the Brazilian industrialists and authorities have squarely put the question, what can we do to help ourselves?

The difficulties for manufacturing domestic and commercial refrigeration equipment in a half-developed

country like Brazil are obvious. The new steel plant near Rio de Janeiro, at Volta Redonda, is going full steam ahead but is not yet able to supply the most urgent needs.

Still more of a problem is prompt and current delivery of the electric motors and other important parts which a new refrigeration industry needs, as it will certainly not be able to manufacture all the many parts and sub-assemblies which go into the finished product.

However, this very difficult project has been undertaken and a partial solution has been found with the formation of the new Brazilian refrigeration industry operating under the name, "National Motors Factory."

A description of this young industry is given here for a number of entirely different reasons. First, it will demonstrate to the American manufacturer the continued necessity of watching and caring for his precious export market.

In the second place, it may show him that where the exportation of the finished unit appears at present impossible, certain parts might be shipped to our southern friends as necessary items for a new national industry, providing local labor with work and at the same time saving the valuable dollar reserves for the country.

Thirdly, Americans may find it well worth their while to investigate the possibilities of organizing of their own accord either assembly plants or factories in Brazil under their own name.

The consequences of such a step are obvious. The valuable trade name is preserved in a potential, strong market of the future.

It must also be kept in mind that

## Aug. Equipment Exports Rose Slightly from July

U. S. Exports of Air Conditioning and Commercial Refrigeration Equipment—August

	Net Quantity	Value
Compressors and condensing units (com'l)		
½ hp. through 3 hp. ....	5,060	\$440,362
Over 3 hp. through 10 hp. ....	208	115,369
Over 10 hp. (reciprocating) ....	106	165,984
Centrifugal refrigeration units ....	4	28,300
Evaporative condensers ....	54	33,837
Condensers except evaporative ....	197	22,743
Heat transfer equipment ....	468	54,365
Ice making equipment ....	....	357,198
Air diffuser units ....	242	46,208
Self-contained commercial refrigeration equipment. ....	2,436	665,431
Liquid coolers ....	80	28,152
Self-contained air conditioners (under 2 tons)....	648	220,971
Self-contained air conditioners (2 tons and over)...	77	144,286
Mechanical commercial refrigerators ....	288	140,198
Air Conditioning and refrigeration aux. equipment. ....	....	768,316
Air cond. and refrig. parts (for foreign assembly)...	....	164,994
Air conditioning and refrig. replacement parts....	....	214,898
<b>Total</b> .....	....	<b>\$3,611,612</b>

Source: U. S. Bureau of the Census.

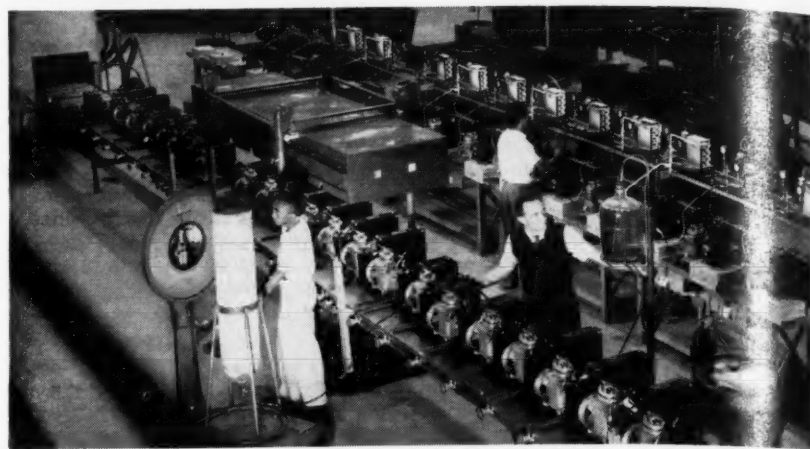
## U. S. Refrigerator Exports Show Increase In August

U. S. Exports of Electrical Household Appliances—August

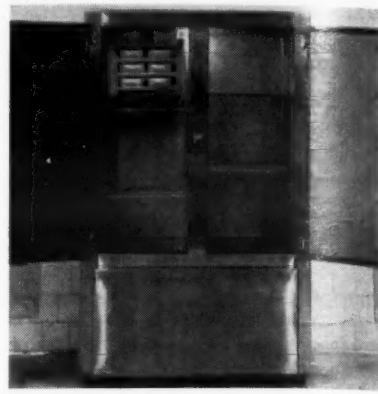
	Quantity	Value
Refrigerators .....	21,202	\$3,429,458
Refrigerator Parts.. ....	....	544,400
Washing Machines.. 6,154	579,303	
Washing Machine Parts .....	....	192,655
Vacuum Cleaners .. 538	18,520	
Vacuum Cleaner Parts .....	....	16,309
Cooking Ranges ... 882	118,728	

Source: U. S. Bureau of the Census.

## Assembly Line & Product--Brazilian Style



Condensing units moving through Brazil's National Motor Factory where domestic and commercial refrigerators—such as the one pictured below—are now being turned out. Details of the plant's operation are described in the accompanying article by Eugene Hesz.



the distances between Brazil and the United States are getting shorter from day to day, the modernization of the country is making rapid progress and, as the foreign exchange situation slowly returns to a balanced budget, the Brazilian market may prove less and less risky to the American manufacturer.

Our English friends, with many long years of experience in the international field of business, can already be observed taking a long view of these possibilities. America should watch out so that her due share of these potentially large markets will be retained.

Actually, the Brazilian refrigeration plant is not new at all. The National Motor Factory was constructed a few years ago with the intended goal of producing airplanes and aviation equipment (Wright).

The plant was originally entirely government-owned but was transformed in 1947 into a 400 million cruzeiros corporation. The capital is now partly privately owned, but the majority of the stock is still held by the government.

The company occupies with its plant nearly 500,000 sq. ft. Its labor force numbers over 1,200. With full production, 2,400 employees will be working.

The entire factory is not yet used for refrigeration manufacturing, its principal program being production of motors, tractors, and trucks. The assembly of domestic and commercial refrigerators is at present secondary.

Two types form the backbone of the output of appliances of our industry: A 22-cu. ft. unit for commercial purposes and a 5-cu. ft. domestic unit.

Selling prices have been fixed at 18,500 cruzeiros for the commercial refrigerator, and 4,500 cruzeiros for the domestic unit. At the present rate of exchange, that would be \$1,000 for the former and \$240 for the latter.

The factory hopes to be able to turn out, on a regular schedule, about 50 commercial and 200 domestic refrigerators per month. Both units will be entirely manufactured in Brazil, with the exception of the stainless steel plates and cold-rolled steel sheets which are imported from the United States. It is hoped that the Brazilian steel works will soon furnish the cold-rolled steel needed.

Called the M 22, the commercial unit has a 2-cylinder compressor manufactured in the plant. The electric motor, of ½ hp., is manufactured in Sao Paulo.

The domestic unit, called the M 5, has a ¼-hp. motor and will be completely manufactured in the factory. The unusual feature of this model is the location of the door, which is not suspended on side-hinges, but is fastened on the top in a slanting position. Therefore, this refrigerator looks from the outside more like a small freezer than like an American domestic refrigerator.

## Type of Electric Current and Officially Listed Residential Rates, 1947, in Principal Brazilian Cities

City	Type of Current	Rate In Cruzeiros Per Kwh.
Rio de Janeiro .....	120 volts, alternating, 50 cycles	0.734
Sao Paulo .....	110 volts, alternating, 60 cycles	0.55
Porto Alegre .....	120 volts, alternating, 50/60 cycles	0.99
Belo Horizonte .....	127 volts, alternating, 60 cycles	0.811
Recife .....	220 volts, alternating, 50 cycles	1.10
Salvador (Bahia) .....	120 volts, alternating, 50/60 cycles	0.80
Belem .....	120 volts, alternating, 50 cycles, nominally. Voltage variable, but seldom higher than 70; use of step-up transformer and stabilizer advisable.	1.60
Fortaleza .....	250 volts, alternating, 50 cycles	1.71

One cruzeiros equals \$0.0534, American currency.

*It's NEW... It's OUTSTANDING*  
*It's CONTINUOUS DISPLAY by...*

**Fogel**  
REFRIGERATOR COMPANY  
PHILA. PENNA.

Another Addition  
To One of America's Most Complete Lines

## The NEW FOGEL "Continuous Display" MEAT CASE

Designed for continuous, mass display, the Fogel "Continuous Case" is fastly becoming the nation's No. 1 Meat Display Case.

### Look At These Money Making Advantages!

- 1. ENDLESS DISPLAY:** Made up of separate sections that are attached together for a continuous line of display without the usual in-between ends that obstruct view and waste space.
- 2. MORE DISPLAY:** The extra wide display surface of this massive case provides for maximum display on three rows of porcelain platters. This is in addition to the extra display space made available by its endless construction.
- 3. EASY TO ADD SECTIONS!** New sections can easily be added when needed, or individual units made of sections if desired, at any time.

Don't wait! Take advantage of this great opportunity to sell the outstanding Meat Display Case of the year. Mail the coupon TODAY for additional details concerning this wonderful opportunity and for information concerning FOGEL equipment... one of the most complete lines in the commercial refrigeration industry.

*Check these Features*

- 1 GENUINE PORCELAIN
- 2 ADJUSTABLE DISPLAY SHELF
- 3 EASY OPENING DOORS
- 4 INTERIOR LIGHTING
- 5 GIANT COILS IN DISPLAY SECTION FOR PERFECT REFRIGERATION

### MAIL THIS COUPON, NOW



FOGEL REFRIGERATOR CO.  
5400 Eadom Street, Philadelphia 37, Pa.

Please send me, free of charge, information checked below:

- ☐ Detailed information Continuous Case.
- ☐ Complete line (illustrated) folder.

Name of Concern \_\_\_\_\_

Name of Sender \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**FOGEL REFRIGERATOR COMPANY**  
5400 EADOM STREET PHILADELPHIA 37, PA.  
CABLE ADDRESS "FOREFCO" PHONE: JEFFERSON-5-8300  
Manufacturers of Quality REFRIGERATORS, DISPLAY CASES, and FREEZERS Since 1899



# Why Does a Capillary . . . ?

## Flow of Refrigerant Studied In Lab Tests

WASHINGTON, D. C.—"Theory and Use of the Capillary Tube Expansion Device," by Profs. Milo M. Bolstad of the University of Missouri and Prof. Richard C. Jordan of the University of Minnesota, presented a study analyzing various stages of the refrigerant flow through capillary tubes, and developed a mathematical formula for determining tube length. Some of the applicable data coming out of the tests were the following:

With subcooled liquid entering the capillary tube, the pressure drop is linear until vapor forms. From that point to the end of the tube the pressure drop is not linear, the pressure drop per unit length increasing as the end of the tube is approached. For this portion of the tube, both the saturated liquid and saturated vapor phases are present, the percent and volume of vapor increasing in the direction of flow.

### LITTLE VARIATION IN RATE

For a wide range of evaporator pressures, there was little observable variation in the flow rate through the tube. The flow rate increased markedly upon subcooling of the refrigerant entering the tube at a given pressure, the increase being approximately linear.

For a given inlet temperature, a decrease in inlet pressure shortens the tube length required to maintain a given flow rate considerably more than does the same numerical increase in evaporator pressure (above the critical outlet pressure). The corollary to this is that subcooling at the tube inlet is a much more important factor than evaporator pressure in determining the tube length required to obtain a given flow rate.

Use of an oil separator decreased the flow rate approximately 8% below the rate when no oil separator was used. This is probably due to the fact that the oil lowers the boiling pressure of the refrigerant so that it remains in the liquid phase

down to a lower pressure than if no oil were present.

The resistance to liquid flow is much less than that of the two-phase flow, it was shown in the test; accordingly the tube can pass a greater quantity of refrigerant when some oil is present.

However, an excessively large oil content might bring about the reverse of this, it was stated by Prof. Bolstad, who presented the paper.

In the discussion on the paper, Lloyd Staebler of Universal Cooler, expressed the belief that oil entrained in the refrigerant has a great bearing on the flow rate, and said in his opinion any appreciable amount of oil would tend to increase the flow rate.

G. P. Marcy of Westinghouse said that while variations in evaporator pressure have almost no effect on the amount of refrigerant passed by the capillary tube (the flow rate), yet an appreciable increase in evaporator pressure would have an effect on the capillary tube length because it would necessitate a change in compressor requirements, thus calling for a change in the capillary tube.

Richard Swartt of Carrier Corp. expressed the thought that the inconclusive results on oil entrainment might be due to ebullition (the unusual action of oil-refrigerant mixtures).

Swartt said that there are many practical considerations in the use of capillaries that need study, and pointed out that information should be sought on such problems as what happens with a capillary designed for -10° F. suction temperature and 85° F. ambient, and the ambient goes up to 110° F.?

R. W. Morgan of Fedders-Quigan Corp. declared that "finding the proper length of capillary tubing is the least of our troubles. We build a job with the minimum pressure drop and minimum charge, and build another with the maximums, and by cut and try on the jobs in between we get the right length."

"We think there are other problems more important, such as variations in pressure drop in different makes of tubing, variations in compressor performance, and variations in oils."

## ASRE Debates Use of Math To Select Length

WASHINGTON, D. C.—Whether a somewhat involved mathematical solution can be of any more than academic interest to the engineer who has been determining the proper length of capillary tubes for use as refrigerant expansion elements by the "cut-and-try" method was debated at some length during the recent annual meeting of the American Society of Refrigerating Engineers here.

The discussion was evoked when Gerald P. Marcy of Westinghouse Electric Corp. discussed "Pressure Drop with Change of Phase in a Capillary Tube."

Commenting that the "capillary tube's use as an expansion valve has been getting considerable interest of late," Marcy pointed out that the problem "has so far resisted exact analysis."

His method of analysis employs a graphical integration of the differential form of the Fanning equation for fluid friction, and is admittedly limited to adiabatic flow. Heat exchange applications between the liquid and suction lines, which are widely used in actual practice, are therefore not subject to analysis by this method, he indicated.

### BASIC DESIGN QUESTIONS

The two basic questions in design of a capillary tube, according to Marcy, are:

"1. Having chosen a tube of a certain inside diameter, what length should it be," and

"2. Having chosen a capillary as to diameter and length, what flow will result."

If the refrigerant flow through the capillary tube was in liquid form throughout its entire length, the problem would be relatively simple, he indicated, but this is complicated by evaporation along the tube.

Because the factors change down the length of the tube, differential equations must be employed, Marcy explained.

Some criticism of Marcy's paper was offered by Lloyd A. Staebler of Universal Cooler, who declared that, "in my opinion, this paper is of academic interest at this time. It applies only to adiabatic flow, which is seldom used in practice. Further, the effect of oil entrainment on the rate of flow was not discussed. Oil gives a greater viscosity than the figure used by Marcy."

"The most optimum choice of capillary tubes can't be made by reference to tables only. One can start there but you'd have to complete the job by actual test."

### 'HAVE TO START SOMEWHERE'

Replied Marcy, "We have to start somewhere. We can't get away from the fact that the unit operates under a variety of conditions, but we have to start somewhere. If we can select the first tube from these computations we can go on for three or four more tubes experimentally. Personally, I'd rather start in the light than in the dark."

Marcy had reported at the conclusion of his paper that the maximum error of his calculations, as compared with actual tests, was 4.6%, while the minimum error was 1.3%.

On the other hand, Dr. R. C. Jordan of the University of Minnesota, supported Marcy with the statement, "I don't believe that the practicability of a paper of this type is important at this stage. You have to start somewhere."

Two points "to consider in future studies," were, however, offered by Jordan:

"1. The roughness factor can't be ignored in drawn tubes.

"2. Liquid viscosity may be questionable as applied to Reynolds numbers."

Support for mathematical approaches to the capillary tube problem was also offered by a York Corp. engineer (Hopkins) who commented:

"We recently found it necessary to go into fundamental mathematics to coordinate our data, and the results were very close to test results, both with and without heat exchangers on 'F-12' and 'F-22.'"

"We set up curves which were very easy to use in selecting restrictors. A weighted average was used as the viscosity of the liquid. Our

## Election & Awards Mark ASRE Meeting



ASRE president-elect Burgess Jennings (left center) "shakes" with retiring president Cliff Holske before (l. to r.) vice presidents John Bergdoll and Edward Simons, and directors George Boone, A. L. Hesselschwerdt, Jr., R. C. Jordan, W. S. Smith, and W. S. Woodside.

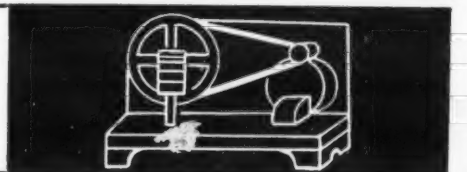
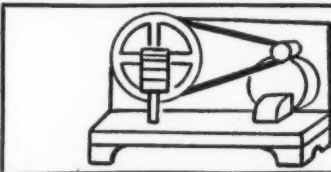


For the best technical papers of the past year Dan Wile (left) and L. A. Staebler (right) receive congratulations and awards from D. C. McCoy, ASRE awards chairman.

calculated results gave a length 10% greater than the test results."

As for computations involving capillaries with heat exchangers Hopkins declared that "any subcooling in the restrictor is merely an extension of the subcooled length of the restrictor."

"The heat exchanger would ordinarily be placed near the condenser. Normally, there is still subcooling in the condenser. The heat exchanger length merely extends the subcooling, so that additional length can simply be added to the calculated subcooling length."



On the Job . . . DAY and NIGHT . . . Dependable

MANHATTAN V-BELTS  
WHIPCORD FHP

For Refrigeration and Air Conditioning Equipment, stock and replace with Manhattan Whipcord FHP V-Belts; Condor V-Belts on heavy duty multiple drives. Cool Running - Quiet - Non-Slip - Minimum Stretch - Longer Lasting



RAYBESTOS-MANHATTAN INC.

Distributors Everywhere

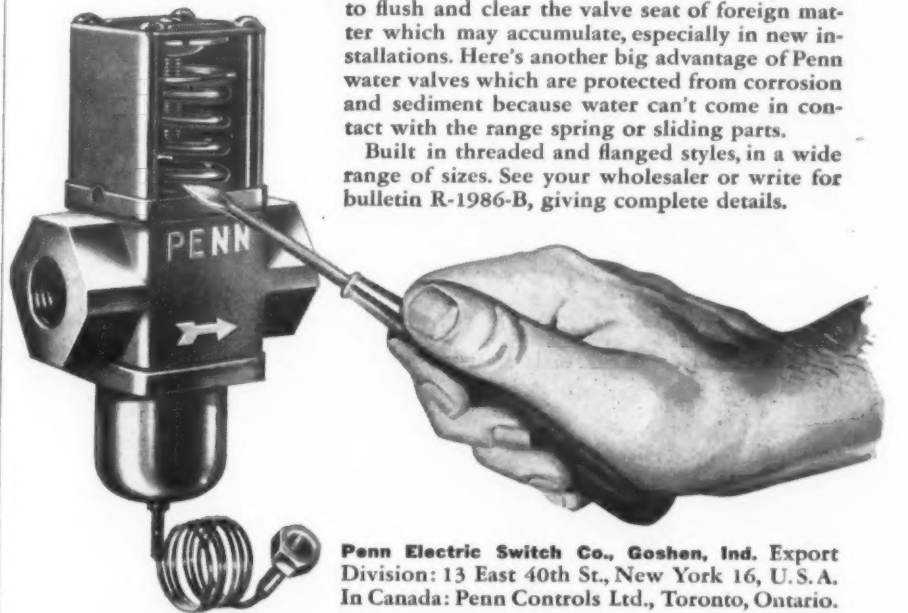
MANHATTAN RUBBER DIVISION

PASSAIC, NEW JERSEY

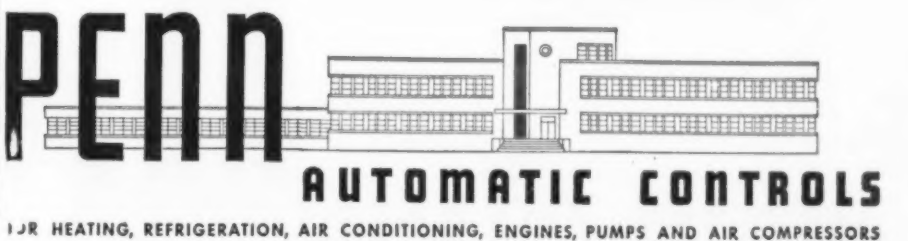


Just slip a screw driver under the range spring and lift to release the tension. That's all you do to flush and clear the valve seat of foreign matter which may accumulate, especially in new installations. Here's another big advantage of Penn water valves which are protected from corrosion and sediment because water can't come in contact with the range spring or sliding parts.

Built in threaded and flanged styles, in a wide range of sizes. See your wholesaler or write for bulletin R-1986-B, giving complete details.



Penn Electric Switch Co., Goshen, Ind. Export Division: 13 East 40th St., New York 16, U.S.A. In Canada: Penn Controls Ltd., Toronto, Ontario.



HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

Genuine Joe's  
the guy who knows

ALL ABOUT  
BEARINGS



Tests prove Steel-Backed, High-Tin, Babbitt-Lined Bearings Superior!

Pioneered by Wagner in 1927, steel-backed, high-tin, babbitt-lined bearings have proved superior both in laboratory tests and field performance. These steel-backed, high-tin, babbitt-lined bearings of prewar quality have been furnished for the past year. They withstand heavy pressure, resist seizure and shaft scoring and operate at low temperatures. That's why Wagner uses them exclusively in their famous fractional horsepower and smaller integral horsepower sleeve-bearing motors (203-505 frames).

Steel-Backed, High-Tin, Babbitt-Lined Bearings Come Ready to Install...

Wagner steel-backed, high-tin, babbitt-lined bearings come to you diamond-bored to a specific size—simply press in (don't beat in—this causes buckling and upsetting of end of bearing) and reassemble the motor. It is ready to run.

They are also available unbored for use on undersized shafts so that they can be line reamed to the desired size.

GET THEM WHERE YOU  
SEE THESE SIGNS

identifying the 450 Authorized Service Stations or Parts Distributors for Wagner Motor Replacement Parts. They are available for immediate delivery.



Write for CATALOG MU-40

Every repair shop needs one. It helps determine the catalog number and price of Wagner Motor Parts.

6441 PLYMOUTH AVENUE  
ST. LOUIS 14, MO., U.S.A.

ELECTRICAL AND AUTOMOTIVE PRODUCTS





# Ductless 'UniTrane' System Gives Buildings Moisture, Temperature Control In Each Room

LA CROSSE, Wis.—A new unit air conditioning system called "UniTrane," which is designed to provide multi-room buildings with year-round individual room temperature and moisture control without the use of ducts, has been introduced by The Trane Co. here.

The system is claimed to combine the best features of unit and central systems in a compact, under-the-window air conditioner. Key piece of equipment is the UniTrane type MC (Moisture Control) room unit containing two independent circuits.

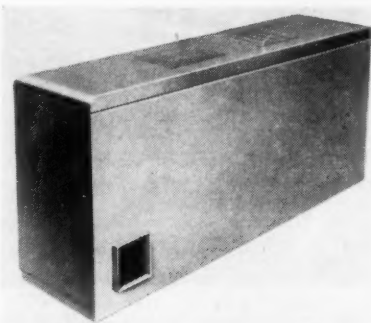
"One of these circuits is the conventional coil-fan-filter arrangement that has been used in unit air conditioners for many years," the company explains. "The other circuit is an entirely new and radically different coil-fan-filter combination especially designed for processing and controlling the moisture content of ventilation air."

Describing operation of this moisture-control circuit, Trane says:

"The unique MC coil is made up of a series of cylindrical elements with axial fins, designed with sufficient internal resistance to neutralize outside air pressure.

"The MC centrifugal fan has been engineered to work against this high internal pressure and deliver metered amounts of ventilation air into the unit, regardless of outside air conditions.

"Outside air, entering this special



Rear view of the new UniTrane Type MC room unit cabinet shows location of ventilation air connection.

circuit, is first filtered, and then completely processed in the axial-fin coil, after which it is delivered to a plenum chamber in the unit where it is blended with a predetermined amount of room air, and released through the outlet of the unit.

"A built-in damper regulates the ratio between outside air and recirculated room air to meet the requirements of the individual room."

In operation, the two circuits of the type MC unit function simultaneously.

Trane has also developed a type OC (One Circuit) unit to meet room air conditioning requirements where the complete moisture control feature of the type MC unit is not

essential. Designed around one coil, one set of fans, and one filter, the type OC unit operates from the same basic piping circuit as the type MC.

"In designing a UniTrane system," the company points out, "MC and OC units may be used in any combination desired. Important considerations are the local climatic conditions, and the way the individual room is to be used.

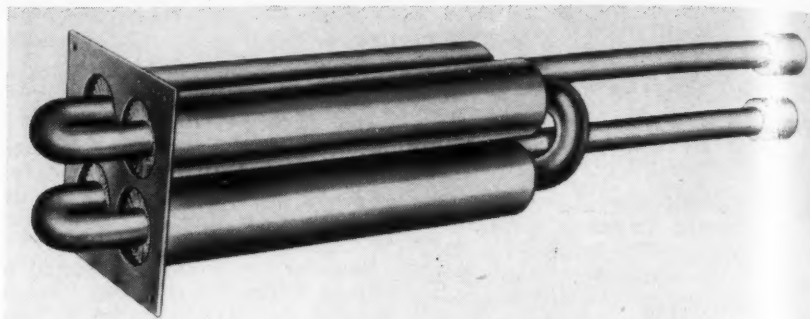
"In locations where humidity is comparatively low in summer, type OC units may be used extensively. Even where humidity is quite high during a portion of the cooling season, type OC units may meet requirements in some portions of the building.

"Making a selection is largely a matter of economics, in which the number of high humidity days in summer are balanced against the use for which a room is intended, the rental rate, and the total air conditioning budget."

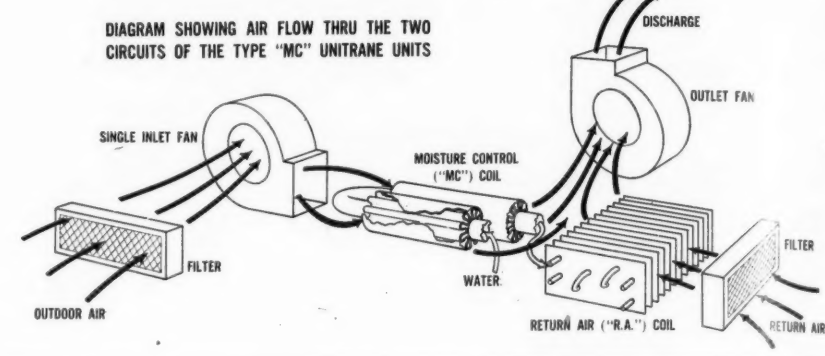
Neither MC nor OC units are designed for application in large areas of multi-room buildings such as dining rooms, lobbies, dance halls, and theaters, or in special applications such as operating rooms or laboratories, it is pointed out.

"It should be noted, however," Trane says, "that regardless of the auxiliary equipment required for special portions of the multi-room building, it can still be incorporated in the same basic piping circuit, and

## This Made 'UniTrane' System Possible



This moisture controller made the UniTrane system possible. All outside air passes through the cylindrical axial-fin elements, where its moisture content is said to be "rigidly controlled."



thus made an integral part of a single air conditioning system for the entire building.

"This fact holds true even in cases where heating, or heating and ventilating equipment without cooling, or cooling equipment without the heating cycle, may be required."

With the UniTrane system, each room has its own unit, or unit group, and its own tenant-controlled thermostat. The ratio of recirculated air to outside ventilation air is adjustable.

Each room unit is connected to a conventional piping circuit that delivers chilled water for the cooling season and hot water for the heating season. This piping is said to be no more complicated than that for a comparable hot water system.

According to the manufacturer, UniTrane provides for all areas in multi-room buildings, from the largest hotels, hospitals, and commercial buildings down to comparatively small office buildings and apartments. The system reportedly can condition any area that can be reached with the building's conventional piping circuit.

Trane claims that with this system, "the air conditioning of multi-room buildings reaches new heights of design simplicity—becomes easier to install and operate than has heretofore been possible." Designing a UniTrane system, the company asserts, is essentially a matter of selecting units for the number of rooms in the building.

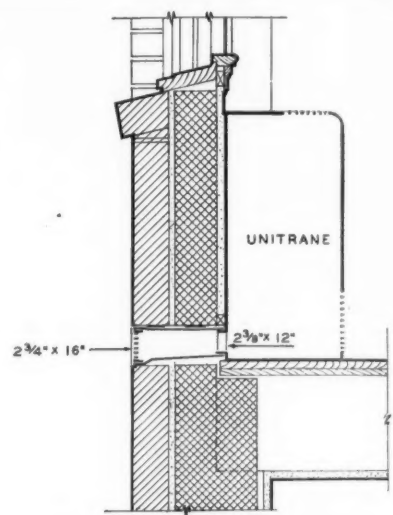
All cabinets are kept at a maximum height of 25 in. to permit installation under standard windows. They may be partially recessed when desired, and under some design conditions, may be fully recessed.

Architectural suggestions made by the company seem to indicate that openings must be made in exterior walls for the introduction of ventilation air.

One water supply line and one return line, plus the regular drain, are required. Motor connections are standard.

The conventional thermostat controls the flow of water through the RA coil.

"Temperature of water supplied to the units is automatically regulated at the source of supply to compensate for changes in outside temperature conditions," the company states. "Thus temperature of water is centrally controlled, while quantity of



In this architectural suggestion for introduction of ventilation air, UniTrane unit is installed beneath a window where no special provision has been made to recess unit. Ventilation air intake is at the floor level.

water is tenant-controlled at the unit."

Details on the UniTrane system are contained in two pieces of company literature. One is the regular bulletin of design and application data for architects and engineers (DS-420). The other is a rather unusual non-technical publication called "Merely a Matter of Air."

"It is written," explained L. A. Trumble, Trane's advertising manager, "for architects and engineers to hand to bankers and other persons who are interested in multi-room air conditioning but are not technically informed on the subject. Our aim here was to make the bulletin interesting and informative without using technical phraseology."

An introductory page tells the reader that "since the air conditioning system eventually selected for your building will of necessity be a 'central' system, a 'unit' system, or some arrangement related to either or both . . . we propose to give you an opportunity to look over the available arrangements, one by one.

"An armchair inspection trip has been arranged which will give you an opportunity to see for yourself which is the best design for your building."

The reader then "inspects" in turn a central system, a modified central system, a modified unit system, and a UniTrane system. Each section of the booklet is followed by conclusions about the system under discussion and a "laboratory interlude" to clear up questions.

**RECO**

Sectional FREEZE COOLERS and HARDENING ROOMS  
Simple to Erect, Move or Enlarge.

SIZES FOR Every NEED

FROM — 192 to 5000 Cu. Ft. Cap.

(REFRIGERATION ENGINEERING CORPORATION)  
**RECO PRODUCTS DIVISION**  
2020 Naudain Street, Phila. 46, Pa.

Available from 1/2 to 10 H.P.

**CLEANABLE DOUBLE-TUBE COUNTER-FLOW WATER-COOLED CONDENSERS**

Write for literature

**Halstead & Mitchell**  
BESSEMER BLDG.  
PITTSBURGH 22, PA.

**compact**

**efficient**

**sturdy**

**THE New**

**MUELLER BRASS CO.**

**Packless line valve...**

Overall height about 3 inches—  
Port-in-line style.

Valve is fully opened with 1½  
turns of the handwheel.

**MUELLER BRASS CO.**  
PORT HURON, MICHIGAN

**MANY GOOD FEATURES**

Two extra large diameter diaphragms—one of phosphor bronze, one of stainless steel—service life well over 100,000 complete cycles.

Connections sufficient distance above the base to allow standard flare nut wrenches to clear when valves are fastened to the wall.

Valve is non-directional—indicational arrow forged on valve merely indicates the preferred direction of flow.

The valve has no springs, the opening being effected by operating wheel and operating screw.

The seat disc is made of molded nylon—a material resistant to the action of all standard refrigerants. The insert, although strong enough to resist flow under sustained pressure, is soft enough to conform to any irregularity of the seat.

A resilient gasket is provided at the back seat, not only to form a seal when the valve is in full open position, but also to form a cushion which prevents seizing, even if back-seated with considerable force.

The pressure-retaining members—body and diaphragm—have ample safety factors for use with any of the commonly used refrigerants.





## DO MRS. WORRY ABOUT MOISTURE HEADACHES?

Northern Refrigeration Service, Inc.  
27 East Michigan St.  
Duluth, Minn.

Editor:

How often have each of us felt the injustice of some statement or word but, instead of answering publicly or privately, we have just kept still.

Recently the writer read the opening statement of a bulletin by a valve manufacturer, as follows:

"Check before you blame the expansion valve. Over 98% of the valves returned show no defect."

I do not question this manufacturer's statement. However, what has this manufacturer done to eliminate moisture? The manufacturer in question delivers his valves to us with small cardboard caps covering the male flare fittings. Are we to presume that this valve will be dry when it is installed? Has the manufacturer no responsibility to deliver his product to us in perfect condition?

A recent check of our wholesalers' stock showed not one valve in stock effectively sealed against moisture! Does the Simon-pure manufacturer assume that his valves are taken from a nice dry shelf in the stockroom, wrapped in moistureproof paper and rushed to the job?

Let us be realistic. All valves installed in line of service are from a serviceman's car stock where they are subject to fluctuating temperatures and, at times, extremely humid conditions.

All manufacturers exclude failure of parts due to moisture, from guarantee. They disregard the fact that their valve may well have contained the offending moisture. How many servicemen can recall installing a new valve and immediately having to heat that valve to get proper operation?

Several weeks ago I was invited to stop in at our wholesale supply house to look at a new coil just received, the very latest design. This coil, well engineered, well constructed, was a beautiful thing to see. Gentlemen, it had a tin cap on the flare fitting to protect the threads! Let the contractor worry about moisture!

I have two questions to ask the service contractor:

1. How much moisture will 50 ft. of one-half inch tubing accumulate if it is not sealed?
2. How much of your service cost will the manufacturer of any refrigeration equipment absorb?

**Specify**  
**DAVISON PA 100**  
refrigeration grade  
**SILICA GEL**

in factory-charged  
dryers bearing  
this label or in bulk for refilling

**PA 100 is your guarantee of all-around, superior performance**  
**SEE YOUR JOBBER**

## Filtrine WATER FILTERS



### TASTES AND ODORS VANISH

Filtrine Filters, in all applications, assure sparkling water — clean to the eye, stimulating to the palate, free of objectionable odors — the kind your customers expect from their coolers!

**SELL A FILTRINE FILTER WITH EVERY COOLER**  
**... A NATURAL PROFIT-MAKING TIE-IN!**

Several choice areas available for manufacturers' representatives.

**FILTRINE MANUFACTURING CO.**  
53 LEXINGTON AVE., BROOKLYN 5, N.Y.  
Manufacturers of Coolers & Filters for over 40 Years

## EQUIPMENT SUBSIDIZING HURTS LOCAL BUSINESS

Box 615  
Benton City, Wash.

Editor:

In your issue of Nov. 15, 1948 we are interested in an article headed: "Beer Firm's Licenses Suspended on Claims of Re-selling Equipment." We note that this subsidization practice is in violation of both Federal and State laws. Here is our question: What Federal and State law does this violate? Can you furnish us the technical references?

While I am not at present in business and have nothing to sell but my labor, I still would like to see money spent in the community where earned. In our little town here with two grocery stores and one tavern they have sent 250 miles for equipment that should have been purchased locally. This equipment is being furnished at cost by grocery wholesalers, beer wholesalers and dairy products wholesalers. Some of this equipment is standard and some is very poorly engineered. I would like to see, for the sake of the legitimate refrigeration dealers in the community, this practice stopped.

I was called in recently on a vegetable case that was purchased some distance away. The customer believed he had bought a G-E case. The only thing I could see about it that was G-E is the motor. It had a valve stuck shut. This case had never operated satisfactorily and, of course, the old story, the finance company was the purchaser of the contract and was not liable for the service or warranty. I advised the owner that in the future he should go to Tacoma for service and to sell his groceries.

A. C. HEWES

## ICE INDUSTRY LETTER ERRORS CONFUSE DATA

National Association of  
Ice Refrigerator Manufacturers  
1706 - L St., Northwest  
Washington, D. C.

Editor:

The Nov. 15 issue of AIR CONDITIONING & REFRIGERATION NEWS has just come in and my face is red on reading the copy of my letter of Oct. 19 to you, protesting at some unfair advertising.

Through some unexplainable reason two errors crept into my letter, which stated that there were 5 million ice refrigerators, where there are more than 12 million.

The second error is regarding production of ice which exceeds 50 million tons instead of five million tons.

In justice of the two industries I will indeed appreciate it if you will publish this correction.

E. G. VAIL  
Secretary

## WHERE IS INFORMATION ON SERVICE CONTRACTS?

Joseph Simons Co.  
Sheldon St. Corner Union St.  
Hartford, Conn.

Editor:

Have you written anything in the NEWS lately, giving details on service contracts, especially as concerns the best sort of forms to be used, and some of the advisable wording in such contracts?

J. SIMONS

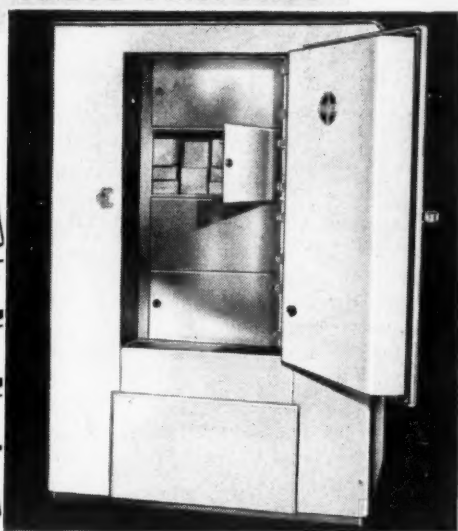
ANSWER:

Pertaining to service maintenance agreements, you will find some good information and a special maintenance agreement form on page 8 of the Nov. 29 issue.

You may also find some helpful information in the stories covering the sessions of the National Association of Refrigeration Contractors convention which was held recently in Chicago.

## SUB-ZERO SELLS EASILY... WITH ALL THESE FEATURES

- WHITE BAKED ENAMEL EXTERIOR
- SATINY ALUMINUM INTERIOR
- THICK, FIBRE GLASS INSULATION
- DEPENDABLE, EFFICIENT COMPRESSORS
- SEPARATE COMPARTMENTS INDIVIDUAL DOORS
- FREEZERS FROM 10 TO 60 CUBIC FEET CAPACITY
- MODERN, ATTRACTIVE DESIGN
- BACKED BY 20 YEARS EXPERIENCE
- 5-YEAR GUARANTEE AVAILABLE
- PRICED TO SELL

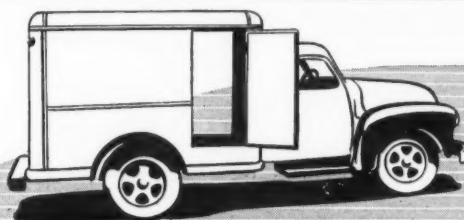


MODEL 16V — 16 cubic feet capacity upright freezer. Four separate compartments with individual doors.

It pays to sell the best. And with Sub-Zero's complete line of modern, dependable freezers, sales and profits will come easier, faster. Both straight freezers and two-temperature models available in various capacities. Write for complete information and for openings in dealer territories.

**SUB-ZERO FREEZER CO., INC.**  
MADISON • WISCONSIN

**THE COMPLETE LINE OF FREEZERS**



From an insulated body...  
to a 45°-50°  
refrigerated  
truck



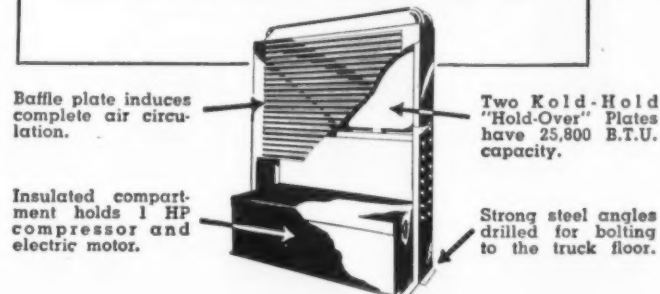
As simple as 1-2-3

\*Name on request

## with KOLD-HOLD'S new Package truck unit

Hi-temperature refrigeration of perishables is achieved quickly, easily and economically through the installation of the new "Package" truck unit. This unit is a completely self-contained refrigeration system which you can install (see right) in from two to three hours without special body work, holders or brackets. It works well in any properly insulated body, regardless of age... and it maintains a 45° to 50° temperature throughout the longest day's deliveries. The unit recharges itself by simply plugging in to any 110V outlet. 220V motor is available if desired. Write for the "Package" truck unit bulletin for information.

1. Cut two holes in the floor of the truck for air intake and discharge. Dimensions and measurements come with the unit, as well as complete installation instructions.
2. Push the unit into position over the holes and bolt securely into place. This is all the installation required.
3. Plug into 110V outlet. Twenty foot rubber covered cord is supplied with the unit. If desired, a connection box may be installed outside the body for greater convenience.



Baffle plate induces complete air circulation.

Two Kold-Hold "Hold-Over" Plates have 25,800 B.T.U. capacity.

Insulated compartment holds 1 HP compressor and electric motor.

Strong steel angles drilled for bolting to the truck floor.

**KOLD-HOLD**

Jobbers in Principal Cities

**KOLD-HOLD MANUFACTURING COMPANY - 500 E. HAZEL ST., LANSING 4, MICHIGAN**

PROCESSING  
TRANSPORTATION  
STORAGE  
protects every step of the way



# The KEY to AIR CONDITIONING

One of a series from

by James J. LaSalvia

## Water-Cooling Towers

In many localities throughout the country, the use of city water or well water for condensing purposes may not be advisable for the following reasons:

1. Water costs are excessive, which would cause high operating cost.
2. Water is not available in sufficient quantities.
3. Water may be of poor quality, such as having a large lime content, which would plug up the coils in the condenser.

Under such conditions in order to have an economical operating cost the use of water-saving devices is recommended for condensing purposes.

The following types of equipment are generally used:

- a. Water-cooling towers.
- b. Evaporative condensers.

The evaporative condenser was described previously.

### TYPES OF WATER-COOLING TOWERS

There are four types of water-cooling towers which are generally used:

1. Atmospheric.
2. Induced draft.
3. Forced draft.
4. Spray cooling pond.

#### ATMOSPHERIC TYPE

The atmospheric type as shown in Fig. 1 is usually placed on the roof of a building. It relies upon the natural draft or wind velocities and should be so located on the roof as to make the best use of the prevailing winds.

It is constructed of either wood or steel louvers on the four sides with corner metal posts and with a wood or steel pan at the bottom, and a water distributing system at the top consisting of piping, spray headers, and sprays.

A float valve is connected to the city water line for make-up, to keep water in the pan at the same level at all times.

This type of cooling tower requires more roof area than the induced or forced draft type, but less than the spray pond type.

#### INDUCED DRAFT TYPE

The induced draft type as shown in Fig. 2 is usually located on the

roof and depends entirely upon powered fans. It is constructed of metal sides with louvers at bottom of sides for air inlet and fan with motor above the sprays. A steel pan is located at the bottom with a ball float valve for water make-up.

In this type, the air is sucked in or induced through the louvers, passing against the water sprays, and the air is exhausted into the atmosphere above the tower.

This type of cooling tower requires the same amount of roof area as the forced air type, but less than the atmospheric type or spray pond.

#### FORCED DRAFT TYPE

This forced draft type as shown in Fig. 3 may be located on the roof or inside of the building and depends entirely upon powered fans.

It is constructed of metal sides

#### Atmospheric Tower

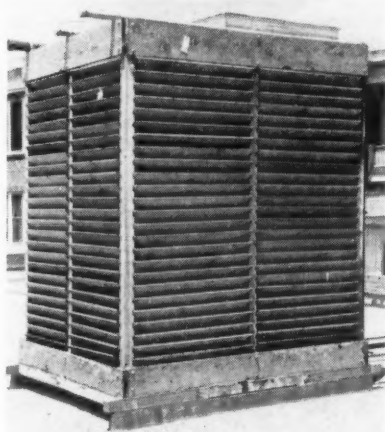


Fig. 1—The atmospheric water-cooling tower relies on natural draft or wind.

### Two Types of Induced Draft Towers Used

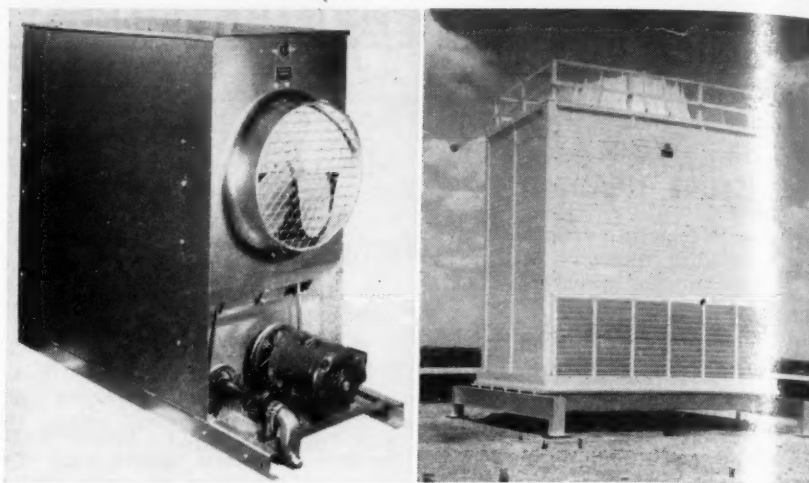


Fig. 2—Steel induced draft tower is shown at left. The one at right is of wood construction.

with louvers or eliminators at the top of the tower and the fan at the bottom and side of tower. A steel pan is also located in bottom of unit with ball float valve for water make-up.

In this type of cooling tower, the air is forced through the tower against the water sprays.

#### SPRAY COOLING POND

The spray cooling pond as shown in Fig. 4 is seldom used on air conditioning systems because of the vast area which is required. It may be placed on ground or roof.

It employs the same features as the atmospheric type tower, depending entirely upon natural draft, but the spray cooling pond type sprays the water into the general air, while the atmospheric type sprays the water downward against the natural draft.

It may be installed with a fence louver or may be out in the open.

#### COOLING TOWER PERFORMANCE

The purpose of the cooling tower is to cool the condensing water. Water in the pan at bottom of the cooling tower is water that has been cooled. The water from this point flows by gravity to a water pump, which is located usually near the condenser.

The water pump applies the proper pressure required to push the water through the condenser and back to the tower. When the water passes through the condenser, heat is picked up and thereby the water rises in temperature.

From the condenser the water is forced back to the cooling tower at the water header and then the sprays. The spraying is done in a very fine mist, against the current of air, and thereby a certain amount of the water is evaporated.

This evaporation represents the latent heat in the water which is dissipated. The amount of water which is evaporated must be made up continuously by the city water make-up, so that a constant amount of water is always in the system.

The water which is not evaporated falls into the pan. In this manner the cooling water is used over and over again, it being necessary only

to add a small amount of make-up water when required.

The cooling that takes place in the cooling tower, is due almost entirely to the latent heat of evaporation of the water plus a small amount due to sensible heat, which is carried away by convection.

The amount of cooling depends upon the wet-bulb temperature of the surrounding air. That is, the water can be cooled theoretically to the wet-bulb temperature of the surrounding air.

Under normal practice it is impossible to cool to the wet-bulb temperature of the surrounding air. The efficiency of a cooling tower will vary from as low as 50% to as high as 80%. Taking the 80% efficiency into consideration, this means that water can be cooled commercially to about 5° F. above the wet-bulb temperature of the surrounding air.

For example, if the surrounding air wet-bulb temperature is 75° F., and the water temperature entering the cooling tower is anywhere above 80° F., the water will be cooled to 80° F. but no lower.

Greater efficiency and cooling can be had by using larger cooling towers, but in this work the first cost and operating cost would be increased greatly for the small additional efficiency which is gained, and therefore, it is not advisable to cool the water any lower than 5° F. above the wet-bulb temperature of the surrounding air.

(To Be Continued)

#### Forced Draft Unit

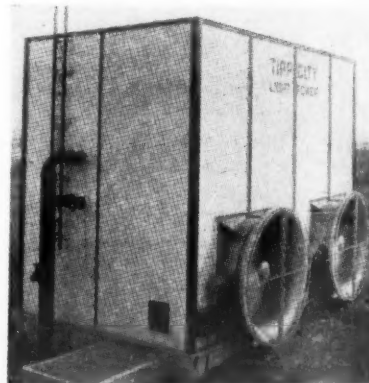


Fig. 3—The forced draft type may be located on roof or inside.

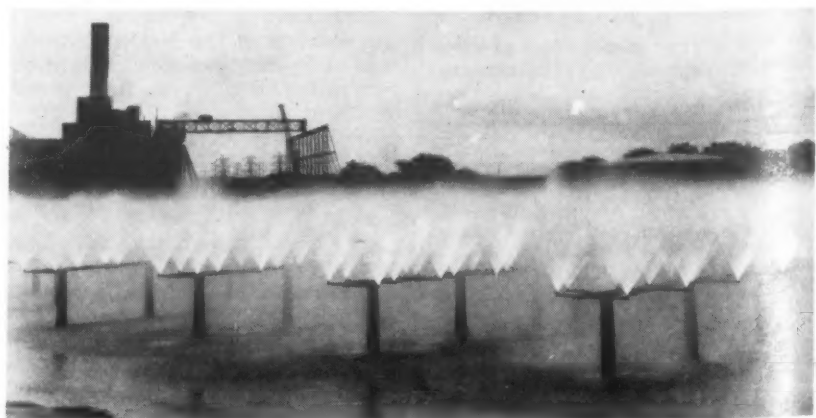


Fig. 4—Spray cooling ponds require vast areas on roof or ground.

### BEAUTY PLUS UTILITY



Larkin refrigeration products are modern proof that engineering beauty can add to functional efficiency. Originator of the Cross Fin Coil, Larkin also produces highest quality in Humi-Temp Forced Convection Units—Bare Tube and Zinc Fused Steel Plate Coils—Evaporative Condensers—Air Conditioning Units—Instantaneous Water Coolers—and other superlative equipment for commercial and industrial refrigeration.



**LARKIN COILS** 519 MEMORIAL DRIVE • S.E. ATLANTA • GEORGIA

# TRANE



## AIR-CONDITIONERS equipped with Trouble-Free Motor Controls

**ALLEN-BRADLEY STARTERS ARE TROUBLE FREE.** Only one moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

**NO CONTACT MAINTENANCE.** Allen-Bradley patented silver alloy contacts never need cleaning, filing, or dressing.

**DEPENDABLE OVERLOAD RELAYS.** Allen-Bradley thermal relays are accurate and dependable even after long service.

The A-B trademark stands for millions of trouble-free operations. Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wisconsin.

### ALLEN-BRADLEY AIR-CONDITIONING AND REFRIGERATION CONTROLS

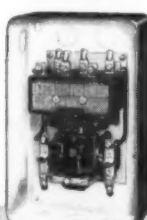
#### PRESSURE AND TEMPERATURE CONTROLS



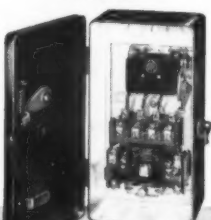
#### MANUAL STARTER



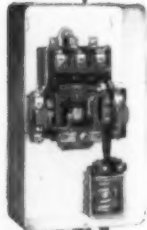
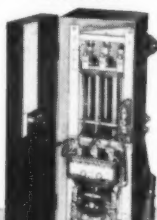
#### AUTOMATIC STARTER



#### COMBINATION STARTER



#### HEAVY COMPRESSION STARTER



High-pressure cutout and motor starter in same enclosure. Temperature controls can be mounted with motor starter in same way.

## ALLEN-BRADLEY SOLENOID MOTOR CONTROL

QUALITY



## Summary of Sales By States

Sales of Electric Household Refrigerators  
By Distributors and Dealers—By States  
Reports were received from 12 companies

States	Unit Sales
Alabama	37,739
Arizona	15,396
Arkansas	26,249
California	202,087
Colorado	25,561
Connecticut	42,065
Delaware	5,416
District of Columbia	33,323
Florida	54,324
Georgia	55,338
Idaho	10,846
Illinois	170,108
Indiana	80,776
Iowa	53,117
Kansas	28,437
Kentucky	36,436
Louisiana	38,063
Maine	17,287
Maryland	42,267
Massachusetts	81,821
Michigan	122,726
Minnesota	59,233
Mississippi	22,235
Missouri	86,636
Montana	10,079
Nebraska	27,642
Nevada	5,187
New Hampshire	11,489
New Jersey	12,335
New Mexico	268
New York	327,797
North Carolina	891,708
North Dakota	836,166
Ohio	161,853
Oklahoma	35,373
Oregon	34,367
Pennsylvania	196,802
Rhode Island	24,203
South Carolina	23,677
South Dakota	12,316
Tennessee	59,380
Texas	138,883
Utah	13,647
Vermont	6,325
Virginia	43,835
Washington	49,520
West Virginia	36,050
Wisconsin	60,645
Wyoming	3,641
Total United States	2,752,173

Participating companies: Admiral Corp.; Coolerator Co.; Crosley Div., AVCO Mfg. Corp.; Frigidaire Div., General Motors Corp.; Gibson Refrigerator Co.; Hotpoint, Inc.; Kelvinator Div., Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Seeger Refrigerator Co.; Stoddard Mfg. Co. (In 7-1-48); Westinghouse Electric Corp.

The unit sales figures shown on this summary are not factory sales. They are distributor and dealer sales of only those participating companies listed above.

## Hoover Cuts Production Force as Sales Decline

NORTH CANTON, Ohio—Though its salesmen are still selling 2½ times as many vacuum cleaners as before the war, the Hoover Co. has announced that it is reducing the production force at its plant here.

The move is intended to gear production to declining sales and a dwindling order backlog, the company said.

The production cut does not mean a decline in prices of Hoover products or a revision in trade-in allowances, the company commented.

## September Volume Brings 9-Mo. Refrigerator Sales to 3,040,576

### ELECTRIC HOUSEHOLD REFRIGERATORS (Lacquer and Porcelain Exterior Cabinets) (Advertised Sizes) Complete Refrigerators Only

SEPTEMBER (14 Companies)				
Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.	334	.....	5	339
2. 4 cu. ft.	4,072	.....	26	4,098
3. 5 cu. ft.	3	.....	.....	3
4. 6 cu. ft.	57,896	.....	3,872	61,768
5. 7 cu. ft.	98,742	.....	5,279	104,021
6. 8 cu. ft.	83,460	6	1,934	85,400
7. 9 and 10 cu. ft.	85,665	.....	2,452	88,117
8. 11 and 12 cu. ft.	14,072	.....	690	14,762
9. 13 cu. ft. and up	16	.....	.....	16
10. Total	344,260	6	14,258	358,524

FIRST NINE MONTHS (11-14 Companies)				
Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.	2,721	.....	17	2,738
2. 4 cu. ft.	12,335	.....	215	12,550
3. 5 cu. ft.	268	.....	.....	268
4. 6 cu. ft.	327,797	.....	31,931	359,728
5. 7 cu. ft.	891,708	705	58,889	951,302
6. 8 cu. ft.	836,166	91	34,784	871,041
7. 9 and 10 cu. ft.	734,861	2	22,034	756,897
8. 11 and 12 cu. ft.	84,227	1	1,800	86,028
9. 13 cu. ft. and up	24	.....	.....	24
10. Total	2,890,107	799	149,670	3,040,576

Participating companies: Admiral Corp.; Crosley Div., AVCO Mfg. Corp.; The Coolerator Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint, Inc.; International Harvester Co. (In 4-1-48); Kelvinator Div., Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Sanitary Refrigerator Co. (In 9-1-48); Seeger Refrigerator Co.; Stoddard Mfg. Co. (In 6-1-48); Westinghouse Electric Corp.

## NEMA Figures--

(Concluded from Page 1, Column 3)

Outstanding gains were made in the 4-cu. ft. and below classifications and the 11-cu. ft. and above sizes. The 9 and 10-cu. ft. size classification was the only one to show a decline from August.

The 7-cu. ft. size retained top spot in popularity with 104,021 units sold during the month. The 9 and 10-cu. ft. group was second and the 8-cu. ft. group third.

Sales of 4-cu. ft. units rose from 692 in August to 4,098 in September. Sales in the 11 and 12-cu. ft. classification skyrocketed from 854 in August to 14,762 in September. Where no units of 13 cu. ft. or larger were sold in August, 16 were moved in September.

As a supplement to its nine months survey, Nema also released data from 12 companies showing distributor and dealer sales for the nine months broken down by states. These sales totaled 2,752,173.

## St. Paul Warns Residents Of 'Fancy' Permit Fees

ST. PAUL—Residents here have been warned by the city to beware of fancy city "permit" fees being charged by contractors and heating, refrigeration, plumbing, and wiring servicemen, many of whom, it is claimed, are exacting exorbitant "fees" of from \$5 to \$20.

The city, it was pointed out, imposes fees for permits but they are very moderate and no more than cover actual costs of inspections. If anyone is charged say \$12 to \$19 for a city permit to install a piece of plumbing or electrical equipment—"look alive," the warning said.

Fees covering alterations and repairs of structures run to a charge of 85 cents for each \$1,000 or fraction thereof in work done in St. Paul. In electrical work, a \$1 fee covers up to 25 outlets. If heating units are installed, the fee is 50 cents per device. The license for wiring a garage is usually \$1 and another \$1 for installing wiring for an automatic heating or ventilating system.

Installation of a new heating system calls for fees of \$2 for a gravity warm air heating plant, \$2 for alterations to such a system, and \$4 for a mechanical air heating plant or alterations.

## Gibson Refrigerator Co. Pays 15-Cent Common Stock Dividend

GREENVILLE, Mich.—Directors of the Gibson Refrigerator Co. here recently declared a dividend of 15 cents per share on common stock payable Dec. 27 to stockholders of record at the close of business on Dec. 10, Frank S. Gibson, Jr., secretary and treasurer, has announced.

## REFRIGERATION INFORMATION IN A HANDY FORM



**NOW READY**  
Audels Refrigeration and Air Conditioning Guide. Highly endorsed for Engineers, Servicemen, Shopmen, Covering modern Principles, Servicing, Operation & Repairs of Household, Special, Commercial & Industrial units. Including Freon, Quick Freezing Lockers, Water Coolers and Air Conditioning Systems. **ANSWERS YOUR QUESTIONS** 1280 pages, 46 chapters. All Fully Illustrated and Indexed for Ready Reference

**\$4 COMPLETE • PAY ONLY \$1 A MONTH**  
Get This Information for Yourself. Mail Coupon Today. No Obligation Unless Satisfied. ASK TO SEE IT.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

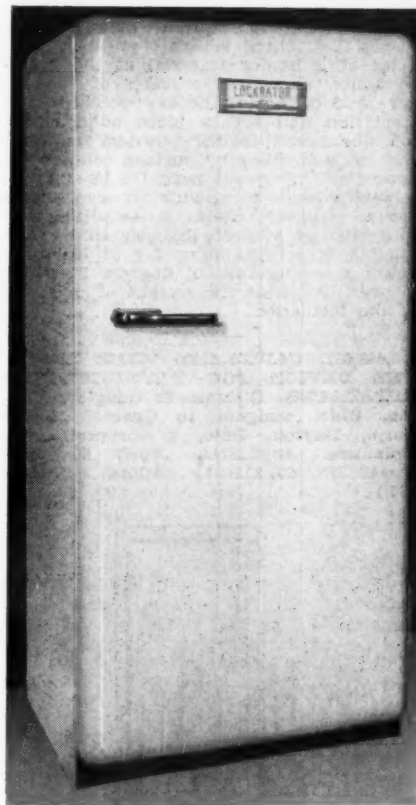
OCCUPATION \_\_\_\_\_

EMPLOYED BY \_\_\_\_\_

MAIL TO: AUDELS, PUBLISHERS, 49 W. 23 ST., N. Y. 10

MAIL AUDELS NEW REFRIGERATION GUIDE for free examination. If O. K. I will send you \$1 in 7 days; then remit \$1 monthly until price of \$4 is paid. Otherwise I will return it.

## Taller, Slimmer Cabinet for Small Kitchen



The 1949 Lockrator



Interior of Model 13E

erator dishes, defrost water jar, and four quick release ice cube trays.

The sealed refrigeration unit, made by Tecumseh Products Co., is said to be of a new type that can be changed from the front of the cabinet without moving the cabinet away from the wall.

The model 13E, the larger refrigerator, has a fan-cooled unit for greater capacity. This model has a gross interior capacity of 13.6 cu. ft. with a net frozen food capacity of 2.25 cu. ft. Over-all cabinet dimensions are: height—64 in.; width—31½ in.; depth over hardware—25½ in.

The model 9E has a gross interior capacity of 9.8 cu. ft. with a net frozen food capacity of 1.2 cu. ft. Over-all cabinet dimensions on this model are: height—58 in.; width—27 in.; and depth over hardware—25¼ in.

## Cannon & Miller Named Export Distributor for Jordon Line

PHILADELPHIA—Jordon Refrigerator Co., Inc., here has announced appointment of Cannon & Miller, New York City, as export distributor for its line of commercial and domestic refrigeration equipment. Cannon recently completed a round-the-world trip during which he visited more than 20 major foreign markets.

## If You Make Products Like These—



## You Should Know UNITED!

For welded wire oven racks, broilers, grills, refrigerator shelves, freezer trays or baskets, put United Steel and Wire Co. on your list of preferred suppliers now. They manufacture these items by the hundreds of thousands for many of America's leading appliance builders. Most of these firms consider United their consultants on all welded wire goods because United fabricates all the practical materials and finishes, and because they have 40 years experience on which to draw in planning low cost volume production. If you are not already well acquainted with United, you will find it good business to contact them soon.



**UNITED** STEEL AND WIRE CO.

150 FONDA ST., BATTLE CREEK, MICH.

## ASRE STANDARDS

Widely Used and Accepted as Recommended Practice  
in Refrigeration and Air Conditioning

#13 METHODS OF RATING AND TESTING AIR CONDITIONING EQUIPMENT (supplemented by Standard #25—not sold separately) both for .....	75¢
#14 METHODS OF RATING AND TESTING MECHANICAL CONDENSING UNITS .....	50¢
#15 SAFETY CODE FOR MECHANICAL REFRIGERATION .....	50¢
#16 METHODS OF RATING AND TESTING SELF-CONTAINED AIR CONDITIONING UNITS FOR COMFORT COOLING .....	50¢
#17 METHOD OF RATING AND TESTING REFRIGERANT EXPANSION VALVES .....	50¢
#18 METHODS OF RATING AND TESTING SELF- CONTAINED MECHANICALLY REFRIGERATED DRINKING WATER COOLERS .....	25¢
#19 WATER CONTENT LIMITS FOR REFRIGERATING SYSTEM PARTS .....	25¢
#20 METHODS OF RATING AND TESTING EVAPORATIVE CONDENSERS .....	60¢
#21 METHODS OF RATING AND TESTING COMPLETE CAN-TYPE MILK COOLERS .....	25¢
#22 METHODS OF RATING AND TESTING WATER COOLED REFRIGERANT CONDENSERS .....	40¢
#23 METHODS OF RATING AND TESTING WATER AND BRINE COOLERS .....	40¢
#24 METHODS OF RATING AND TESTING FORCED CIRCULATION AND NATURAL CONVECTION AIR COOLERS FOR REFRIGERATION (supplement to Standard #13—not sold separately) both for .....	75¢
#25 RECOMMENDED PRACTICE FOR MECHANICAL REFRIGERATION INSTALLATIONS ON SHIPBOARD .....	\$1.00
Complete set of all above, paper bound .....	\$4.50

Send orders with remittance or COD instructions to

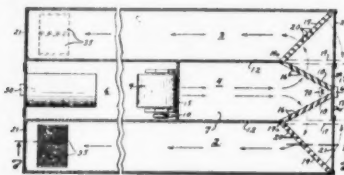
**The American Society of Refrigerating Engineers**  
40 WEST 40 STREET NEW YORK, N. Y.



# PATENTS

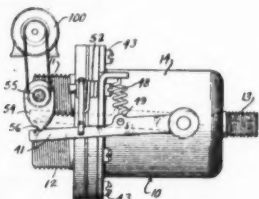
Week of August 31  
(Continued)

**2,448,144. DEHYDRATOR APPARATUS.** Ervin H. Guthrie, Santa Ana Calif. Application Oct. 25, 1943, Serial No. 507,525. 6 Claims. (Cl. 34-46.)



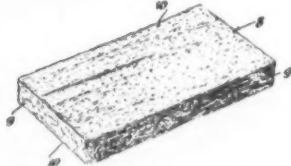
1. A dehydrating apparatus comprising a plurality of enclosed drying tunnels, a heating tunnel, means to heat a drying medium in said heating tunnel, means to impart circulatory movement to said drying medium, a directing chamber at one end of said apparatus in flow communication with said drying tunnels and said heating tunnels, fixed divider members having adjustable baffles positioned in said directing chamber, said divider members adapted to direct drying medium issuing from the heating tunnel to said drying tunnels, movable channeling members having fixed baffles positioned in said chamber each of said channeling members movable across the intake end of a drying tunnel, each of said divider members adaptable to close off communication between said heating tunnel and a drying tunnel, and means to recirculate and discharge selectively and synchronously said drying medium, said last mentioned means positioned in said tunnels adjacent the ends thereof opposite to said directing chamber and comprising automatically controlled damper units acting in synchronized movement with respect to one another.

**2,448,170. MIXER VALVE AND CONTROL.** Clyde A. Brown, Chicago, Ill., assignor to the Dole Valve Co., Chicago, Ill., a corporation of Illinois. Application March 10, 1944, Serial No. 525,850. 3 Claims. (Cl. 236-12.)



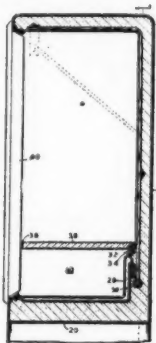
1. Fluid control means comprising a fluid mixing device having adjustable temperature responsive means for automatically proportioning fluid of normally different temperatures to maintain the resulting mixed fluid at a predetermined temperature level, a movable adjusting arm for said temperature responsive means pivotally mounted at one end on an exterior wall of said mixing device, means biasing said arm toward one extreme pivotal position corresponding to a first temperature setting of said temperature responsive means, cam control means engaging the other end of the arm for shifting said arm to a second pivotal position corresponding to a second temperature setting of said temperature responsive means, and a latch mounted on said mixing device and optionally movable between latching and releasing positions relative to said arm, said latch engaging said arm at an intermediate point thereof when said arm is in said second position only thereby retaining said arm in said second position irrespective of the subsequent action of said control means.

**2,448,186. HEAT INSULATION.** Lewis B. Miller, Ambler, and Willard R. Seipt, North Wales, Pa., assignors to Keasbey & Mattison Co., Ambler, Pa., a corporation of Pennsylvania. Application June 29, 1942, Serial No. 448,928. 6 Claims. (Cl. 154-44.)



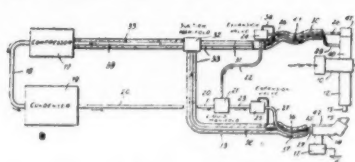
1. A heat insulating structure formed by a series of layers of similar composition, each layer comprising whole mineral fibers in proportion of the order of 25 to 40% by dry weight and tending to run flatwise of the structure and entangled with evenly distributed separate particles of powdery mineral material and evenly distributed separate powdery particles of a binder material of the group bentonite, clays and silicates of the order of 25 to 30% of the dry weight of the insulation and set in place adhering to the fibers and to the powdery material and to each other by surface contact between the individual particles leaving intervening voids to provide an open highly porous structure having a low density of the order of 8 to 15 lbs. per cu. ft. and capable of withstanding for at least six hours a temperature in degrees F. which is over 100 times the weight of a cu. ft. of the insulation.

**2,448,261. CAPILLARY HEAT TRANSFER DEVICE FOR REFRIGERATING APPARATUS.** Richard S. Gaugler, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application April 30, 1945, Serial No. 591,113. 11 Claims. (Cl. 62-125.)



10. A heat transfer device including a liner member, a refrigerating system including a primary evaporator located below the liner member, a secondary heat transfer device including a header and a plurality of tubes extending out of said header into heat exchange relationship with portions of said liner, said tubes containing capillary means extending from said header into the portions in contact with the liner, said tubes including a passage connecting the header with said portions in contact with the liner, said header containing a sufficient amount of a volatile liquid to contact and wet the capillary means, and a conduit means extending from said header at a point above the level of the volatile liquid and extending above the level of the volatile liquid into heat exchange relation with said primary evaporator for condensing vapor discharged from said tubes into the header.

**2,448,396. REFRIGERATED ELECTRODE.** Carl L. Schebler, St. Louis, Frank Douglas, Brentwood, and Ledru A. Clasquin, Riverview Gardens, Mo., assignors to the Emerson Electric Mfg. Co., St. Louis, Mo., a corporation of Missouri. Application Dec. 2, 1943, Serial No. 512,540. 4 Claims. (Cl. 219-4.)



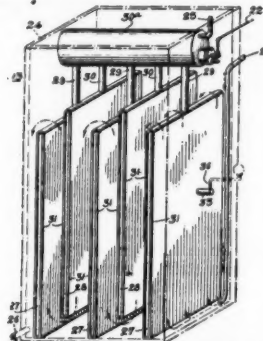
1. In a method of controlling the temperature of electrodes, or the like, the steps of providing an expansion chamber in heat-transferring relationship with the electrode, introducing a refrigerant liquid into said chamber so that the same may absorb heat and evaporate in the chamber, withdrawing the evaporated refrigerant from the chamber for reconversion and recirculating, and so controlling the supply of liquid refrigerant to the chamber by the temperature of the evaporated refrigerant that a liquid level of refrigerant will be maintained in the chamber.

**2,448,429. PRESSURE RELIEF VALVE.** Guy J. Henry, Chicago, Ill. Application Oct. 29, 1945, Serial No. 625,253. 3 Claims. (Cl. 137-53.)

1. A pressure relief valve comprising, in combination, a valve chamber having an inlet and discharge and valve port therebetween, said discharge being normally closed by a rupturable element extending transversely thereof on the downstream side of the valve port, a valve reciprocable in said chamber to and from closing relation to said port, a diaphragm peripherally secured to the chamber and connected to the valve to control the same, and a spring operable on the valve to urge the same toward port closing position, said diaphragm and valve being located in the chamber whereby in closed relation with solution flowing from the boiler to the absorber, then in heat transfer relation with the rectifier and then again in heat exchange relation with absorption solution flowing from the boiler to the absorber.

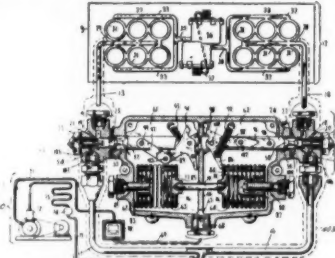
position of the valve the same exposed and subject to closing pressure in the inlet, the diaphragm being exposed to and urged by said pressure in the opposite direction, the effective area of the diaphragm so exposed only slightly exceeding the effective area of the valve so exposed and said spring exerting a force only sufficient to offset the difference in force corresponding to a predetermined inlet pressure acting on the differential in exposed area of the valve and diaphragm.

**2,448,453. LIQUID COOLING SYSTEM.** Joseph I. Morrison, Lincolnwood, Ill. Application Sept. 11, 1944, Serial No. 553,495. 6 Claims. (Cl. 62-141.)



1. A cooling system comprising a refrigerator having a refrigerant-receiving and heat-transferring device provided with an extensive heat transfer surface on a face thereof and adapted to receive refrigerant for congealing a liquid on said surface, a tank for containing liquid to substantially cover said heat transfer surface, power means for circulating liquid through said tank over said surface, and means for controlling the thickness of the congealed liquid formed on said surface comprising a container for a congealable liquid located so that at least a portion of the container will be within the field of congealing of liquid on said surface, and comprising also pressure responsive means for controlling the operation of said power means in communication with said container and controlled by the change of pressure therein due to the congealing of liquid therein.

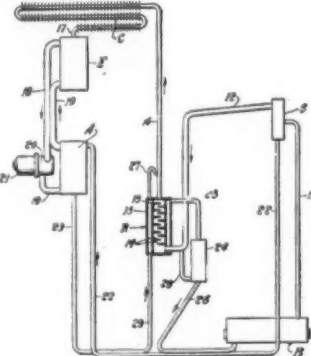
**2,448,454. REFRIGERATING SYSTEM.** Glenn Mauffy, Springfield, Ohio. Application Jan. 23, 1939, Serial No. 252,292, which is a division of application Serial No. 719,099, April 5, 1934. Divided and this application Feb. 5, 1945, Serial No. 576,182. 5 Claims. (Cl. 62-3.)



2. In a refrigerating system employing a volatile refrigerant, a pair of heat exchange elements, means for directing the flow of said refrigerant so that at one time the greater part of it evaporates in one of said elements and at another time the greater part of it evaporates in the other of said elements, a liquid refrigerant storage receptacle, and means in said system for placing said receptacle in communication with whichever one of the two heat exchange elements is more active as an evaporator, said storage receptacle being adapted to store excess liquid refrigerant during the active evaporating period of one of said elements.

## REISSUES

**23,032. CONTINUOUS ABSORPTION REFRIGERATING SYSTEM.** Curtis C. Coons, North Canton, Ohio, assignor to the Hoover Co., North Canton, Ohio, a corporation of Ohio. Original No. 2,178,870, dated Nov. 7, 1939, Serial No. 94,934, Aug. 8, 1936. Application for reissue Jan. 10, 1941, Serial No. 373,970. 15 Claims. (Cl. 62-119.5.)

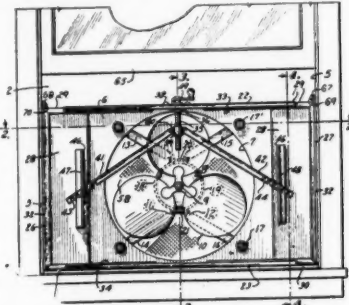


1. In an absorption refrigerating system having a boiler, an absorber, means for circulating absorption liquid between the boiler and the absorber and a liquid heat exchanger, the combination of a rectifier and means for transferring heat from the rectifier to absorption liquid flowing from the absorber to the boiler, the arrangement being such that the absorption liquid flowing from the absorber to the boiler passes first in heat exchange

relation with solution flowing from the boiler to the absorber, then in heat transfer relation with the rectifier and then again in heat exchange relation with absorption solution flowing from the boiler to the absorber.

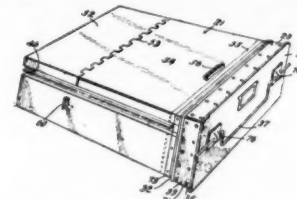
Weeks of Sept. 7 & 14

**2,448,671. FRAME STRUCTURE FOR VENTILATING FANS.** Paul E. Hord, Tebbetts, Mo. Application March 10, 1947, Serial No. 733,600. 5 Claims. (Cl. 98-94.)



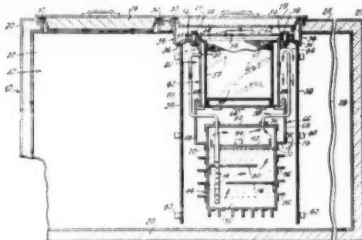
1. A frame for a window ventilating fan comprising, top, bottom, and side members forming a housing having a central opening, means for supporting the fan in the housing coaxial with said opening, a pair of extension panels slidably connected with the respective sides of said housing, a threaded rod rotatably carried by and depending from the top member of said housing, a threaded collar on said rod, and links connecting said collar with said panels, whereby said panels are extended on said housing so that their outer side edges engage the faces of the window frame.

**2,448,949. DRAWER FOR REFRIGERATED LOCKERS.** William McKinley Baird, Chicago, Ill. Original application March 22, 1944, Serial No. 527,581. Divided and this application March 26, 1947, Serial No. 737,197. 1 Claim. (Cl. 62-89.)



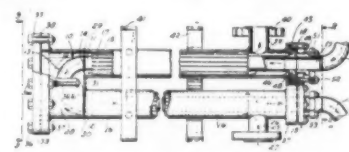
A drawer for refrigerated lockers cooled by forced circulation of air comprising a front head portion having a pair of rearwardly extending fixed angle members, a rear imperforate container portion having a pair of fixed extensions extending forwardly beyond said container portion, the forward portions of said extensions contacting the rear portions of said angle members and leaving a space between said container portion and said front head portion for the downward passage of the forced air there-through for cooling the front of said container portion, and means extending through said extensions and said angle members for rigidly attaching said container portion to said front head portion.

**2,449,005. SHIPPING CONTAINER REFRIGERATED BY DRY ICE.** Andrew J. Nicholas, North Haven, Conn., assignor to the Grenby Mfg. Co., Plainville, Conn., a corporation of Connecticut. Application May 23, 1946, Serial No. 671,864. 11 Claims. (Cl. 61-91.5.)



1. In a refrigerator having a load-carrying compartment for storage of articles in a refrigerated gaseous atmosphere, a substantially gas-tight container for solidified CO<sub>2</sub> located within said compartment, a container having a secondary refrigerant therein located within said compartment substantially out of direct heat-exchanging relationship with solidified CO<sub>2</sub> in said first-named container, means to conduct evaporated gaseous CO<sub>2</sub> from said first-named container into heat-exchanging relationship with said secondary refrigerant, and means for continuously discharging said gaseous CO<sub>2</sub> after heat-exchange with said secondary refrigerant into an upper region of said refrigerated compartment whereby to cause forced circulation of the atmosphere in said compartment.

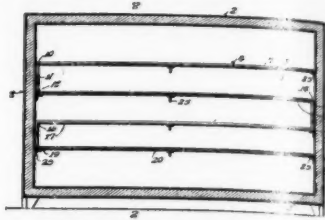
**2,449,052. HEAT EXCHANGER.** John W. Brown, Jr., Lakewood, Ohio, assignor to Brown Plintube Co., Elyria, Ohio, a corporation of Ohio. Application Jan. 13, 1945, Serial No. 572,627. 4 Claims. (Cl. 285-20.)



1. In a heat exchanger embodying an outer tube and an inner tube adapted to join a connecting pipe, means for connecting the inner tube to such a pipe and to the outer tube comprising an outwardly facing shoulder near the end of the outer tube, an enlarged end on the inner tube having a maximum diameter less than the minimum diameter of the outer tube and providing an inwardly facing shoulder near the end of the inner tube, interlocking means adapted to engage between the shoulder of the outer tube and the shoulder of the inner tube for limiting inward movement of the inner tube in the outer tube, a sealing surface adjacent one end of the outer tube, a sealing surface on the enlarged end of the inner tube, a sealing ring adapted to seal against the sealing surfaces of both said tubes, said connecting

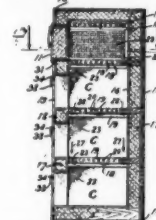
pipe having a sealing surface adjacent one end thereof, means connected to said outer tube for drawing said sealing ring simultaneously against said inner and outer tube sealing surfaces, and means connected to said outer tube for drawing the connecting pipe into sealing engagement with the inner tube.

**2,449,094. EVAPORATOR CONSTRUCTION.** Harold E. Wheeler, Chicago, Ill. Application April 7, 1944, Serial No. 529,965. 2 Claims. (Cl. 62-126.)



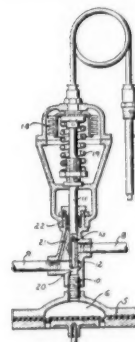
1. A refrigerator comprising a cabinet and a plurality of refrigerated shelves mounted within the cabinet and made from a single strip of extruded material bent to provide a plurality of horizontal shelf portions and an integral riser portion connecting a pair of said shelf portions, said strip having spaced longitudinal ducts formed therein and extending in said horizontal shelf and riser portions for the passage of refrigerant therethrough, and a foraminous grill forming a shelf extension supported in coplanar alignment with at least one of said horizontal shelf portions.

**2,449,101. MULTIPLE UNIT FREEZER CABINET.** Lyndle W. Barley, Colorado Springs, Colo. Application April 5, 1947, Serial No. 739,732. 5 Claims. (Cl. 62-83.)



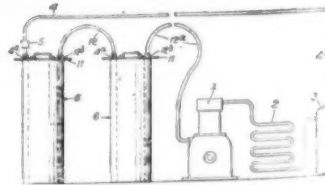
1. A refrigerating apparatus, comprising a cabinet having heat insulating walls, one side wall having a plurality of door openings, arranged in vertically spaced rows, a freezer plate positioned along the roof of the cabinet and other freezer plates extending horizontally between each row of door openings, dividing the interior into as many sections as there are horizontal rows of door openings, forming shelves, the freezer plates below the top plate being of less width than the cabinet, and positioned substantially centrally, providing air passages from top to bottom along the front and rear walls, and vertical reticulated partitions positioned to separate the sections into compartments, one for each door opening.

**2,449,123. PILOT VALVE FOR COMBINED TEMPERATURE AND PRESSURE CONTROL APPARATUS.** James L. Kimball and Roy C. Earley, Danvers, Mass., assignors to Ruggles-Klingemann Mfg. Co., Salem, Mass. Application Nov. 1, 1944, Serial No. 561,444. 1 Claim. (Cl. 251-76.)



In a fluid pressure control valve, comprising in combination, a valve casing having high pressure admission and first and second delivery ports, a valve stem of uniform diameter throughout slidable within the bore of said casing, said stem having a hollow core forming a central passage at its lower end with cross ports connecting therewith adapted to register with the high pressure admission through said cross ports and said central passage when said stem is in one of two effective positions, and to close said high pressure port and establish communication between the first and second named ports when in the other relative position, a stuffing box through which the stem enters the casing, an exhaust vent passage connecting the lower end of the stuffing box with the second named delivery port, and control means for operating said stem to either one or the other of its effective positions.

**2,449,127. APPARATUS FOR COOLING THE INTERIORS OF CONTAINERS.** Herman W. Kleist, Chicago, Ill., assignor to Dole Refrigerating Co., Chicago, Ill., a corporation of Illinois. Application March 15, 1944, Serial No. 529,610. 6 Claims. (Cl. 62-141.)



1. In an evaporator adapted for use for cooling the contents of containers, an inner cylinder and an outer cylinder, the said cylinders being connected at their upper and lower ends, a coil extending helically about the space between said cylinders, a refrigerant inlet duct extending to said coil and a refrigerant outlet duct extending from said coil, the outlet duct extending from said coil, the space surrounded by the inner cylinder being open at the bottom, and evaporator supporting means adjacent the top of the evaporator, adapted to seat upon the container into which said evaporator is inserted.

(To Be Continued)

## Subscribe Now

Receive the greatest trade paper in the Industry—AIR CONDITIONING & REFRIGERATION NEWS. Published every week. Brings you latest news and vital information on household refrigeration, commercial refrigeration, air conditioning, home freezers; manufacturing, distributing, retailing, servicing, and contracting. Only \$5 per year, 52 issues.

Fill in coupon and mail today

AIR CONDITIONING & REFRIGERATION NEWS  
450 West Fort Street, Detroit 26, Michigan

Gentlemen: Send the NEWS for one year.

☐ \$5 enclosed ☐ Bill me ☐ Bill the company

Name.....

Company.....

Street.....

City..... Zone..... State.....

12-20-48



# Refrigeration Problems

## and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

### Lost Time And Short Cuts

In the summer, when service calls come in thick and fast and there are not enough hours in the day, with night thrown in besides, every little time-saver helps. It is then that "short-cuts" are the most valuable and the most appreciated.

Over-all, the biggest "short-cut"—the greatest time-saver—is the avoidance of wasted time. All the little "kinds" added together do not amount to as much saved time as anyone of the different methods by which we can keep from wasting time.

From the time we start to work in the morning until we quit in the evening, all of the hours are not fully productive. Some of the time is "lost time." "Lost time" is time that is part of our work. Time that is spent but which is not spent working directly on the customer's equipment so we can't charge him for it directly.

Eventually the customer has to pay for lost time; he is the only one that can pay for it.

Take Joe. Joe works for the Elite Refrigeration Service Co. Joe comes to work at 7 a.m. He has to make out or complete his service reports for the day before; he has to turn in his cash collections; he must account for material and parts he used the day before and draw out and be charged for material to replace that used; he must tag and turn in compressors, motors, etc., to be rebuilt; he often has to go over with the boss, the details connected with one or two of his jobs; he has to get his car mileage checked and his time turned in; he must get his new assignments; and, of course, he has to shoot the breeze a bit and swap experiences with some of the other boys.

All this takes time—some mornings he can do all of it in 20 or 30 minutes; some mornings he loses an hour before he can get going.

#### NECESSARY BUT NON-PRODUCTIVE

The time spent in doing those things is non-productive time. It is necessary, but it can't be directly charged to the customer. It is "lost time."

It's on the customer's bill though. It has to be there, there is no where else for it to be. But like the suit of clothes on the expense account; it's there, but you can't see it.

Last time is one of the "indirect costs" that have to be added to material and labor to get total cost. The over-all profit, called "gross profit"—that which is left after material and labor is taken out of the selling price—has to be big enough to hold "lost time," rent, insurance, and the thousand and one things that go into the cost of doing business, and still leave a tiny bit that the owner can call his own, the final "net profit" after taxes.

Last time can be reduced by proper organization, by having stock men, cashiers, bookkeepers, etc. take as much as possible off the serviceman.

But then their pay is substituted for lost time. Ordinarily they can do these more efficiently and more quickly, so the total cost per man of lost time can be cut to a minimum.

#### WHAT LOST TIME CONSISTS OF

To the service engineer "working for himself," lost time may be a large part of his working hours. He must spend time estimating jobs. Even though he gets the job, the time spent in estimating and getting the customer's "go-ahead" is lost time, for that time must be absorbed into his gross profit. It is a part of his sales cost. (Maybe he thought he didn't have any sales cost; but he has, just the same.)

If he didn't get the job it's even worse. Then he has to charge this lost time against "advertising."

The "independent" service engineer who is working for himself has to go to the wholesale house and this takes a lot of time if he doesn't watch his stock which makes it necessary to run to the wholesaler for every little fitting, belt, or part that are so commonly used that he should keep them in his truck or at least in his own shop.

#### PROBLEM OF THE INDEPENDENT

He has to keep his records, send out statements, keep after the slow payers, look after his insurance, taxes, licenses, permits, and advertising.

If he is wise, he will spend some time reading; learning more of his trade and his business. He must keep up to date and abreast of new methods, new equipment, and new materials.

He can't do these things as cheaply per man as can the boss of 15 men. This one man, the boss, can do these chores for 15 men at a far lower cost per man than can the smaller operator.

All these things he must do. He can't entirely escape them, but he can so organize them that they take the very minimum of his time.

#### HOW TO REDUCE LOST TIME

He can keep his records simply so that they are not involved and laborious and unnecessarily time-consuming. He can keep a close watch on his stock, so that he doesn't unexpectedly run out of stock of common supplies. If he can keep a want-list and go to the wholesalers only one half as often, he can save a good deal of lost time.

He can plan his work and not run around in circles backtracking and wasting travel time. It, too, is lost time.

He can make sure that his service truck is kept stocked with the everyday items. Refrigerant cylinders should be kept filled; oil cans replenished.

If a belt is used from the truck stock, he should replace it that evening or the next morning and thus avoid a wild-goose chase the next time he needs that size belt.

If he takes some tools out of the truck to use in the shop he should make sure they are put back. Kind of a silly feeling to get out on a job clear across town and find you left your tool kit in the shop.

#### TIME LOST THROUGH INEFFICIENCY

Then there is another type of lost time that cannot be found and definitely accounted for so easily or so exactly. It is the time wasted on account of inefficiency.

Sam spent all one afternoon and most of the night on a "tight compressor" that finally turned out to be a case of low voltage. A test with a voltmeter would have told him the truth in five minutes and saved him hours of work, worry, and embarrassment and his customer \$100 worth of spoiled food.

#### THINK BEFORE ACTING

Jack ran all over town to get parts to replace the discharge valves of a compressor and then after he had spent another hour or so putting them in, he found that the job still short-cycled. He finally traced this to an unbalanced load when the two-temperature valve cut out the high-temperature load and left only a small ice cream cabinet on the compressor.

If he had put on the gauges he would have been able to check the discharge valves in a few minutes and recognize that the discharge valves were holding tightly.

Harry put methyl chloride in a sealed unit instead of "Freon-12" without knowing that this one like most sealed units had an aluminum die-cast motor rotor. Result, he ruined the unit and made it necessary to dismantle and clean out the entire system. But worse, he singed off his eyebrows and narrowly escaped serious injury. Harry took pride in being a "practical man"; he scoffed at "theory" and couldn't be bothered going to lectures and educational exhibits.

#### HOW TO WASTE TIME

All of us could add similar occurrences from our own experiences or from those of friends or fellow workmen. More hours have been "wasted" than "lost"—wasted because we didn't use our head or our tools or didn't keep up to date.

We failed to properly diagnose a trouble. We jumped to a conclusion instead of checking with gauges, thermometers, meters, or other time savers.

We sat hours in front of a job watching it cycle and trying to figure out what was wrong. Instead, we should have put on a recording suction pressure gauge, gone ahead with another job, and come back. By that time the chart would have told us exactly what was wrong (a "sticky" expansion valve, probably due to moisture).

#### KNOWLEDGE IS THE BIG SHORT CUT

The big, important "Short Cut" is knowledge—knowing what is going on inside and why. Knowledge gives us the power to accurately and quickly locate the fault so that we do not lose hours of time changing this or that in the hope that we may stumble on to the trouble. That is really fixing the job the hard way.

The easy way, the quick way, the Master Short Cut, is the knowledge of the reasons why. It's the best tool in the tool kit.

## CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$2.50 per insertion 50 words or under. 5¢ ea. additional word.

RATES for all other classifications \$5.00 per insertion 50 words or under. 10¢ ea. additional word.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words. Other addresses by actual word count. Please send payment with order.

#### POSITIONS WANTED

JR. ENGINEER, capable of survey, design, estimating and layout of all types of heating, refrigeration, and air conditioning systems. Recent graduate of co-operative college with some experience in this field. Willing to travel. Write BOX 3031, Air Conditioning & Refrigeration News.

EXPORT MANAGER (or assistant to manager) with exact knowledge of international markets; widely travelled; 5 modern languages; first rate references—available. Letters under BOX 3037, Air Conditioning & Refrigeration News.

MANUFACTURERS' REPRESENTATIVE for Ohio, Indiana, Kentucky and Michigan open for products to sell to jobbers and manufacturers. Ten years selling experience in refrigeration and air conditioning. BOX 3045, Air Conditioning & Refrigeration News.

MAN WITH 20 years experience in sales and engineering of refrigeration products with national coverage desires to locate in Detroit area. Offers exceptional record of performance and proved ability. Complete details on background and experience will be sent on request or will welcome personal interviews. BOX 3048, Air Conditioning & Refrigeration News.

MANUFACTURERS' REPRESENTATIVE would like to hear from manufacturers desiring coverage of dealers and distributors of commercial refrigeration equipment and supplies. Pennsylvania, New Jersey, Delaware, Maryland and Virginia. Twenty years experience walk-in coolers, display cases, refrigerators, refrigeration and air conditioning equipment. BOX 3051, Air Conditioning & Refrigeration News.

#### POSITIONS AVAILABLE

WANTED A factory sales engineer representative in the South to contact distributors and generally represent the factory. Location—Louisiana. BAKER ICE MACHINE CO., INC., South Windham, Maine.

SALES MANAGER wanted—Middle Georgia District (trade population 500,000) for York Corporation—wants sales manager capable of hiring and training sales force to handle packaged items. Salary proportionate to ability to produce. CONDITIONED AIR, INC., Box 834, Macon, Georgia.

ORLANDO, FLORIDA sunshine. Opportunity for an experienced commercial refrigeration salesman who can sell. This is a lucrative position for a go-getter, who is interested in year around summer weather, with one of Florida's most aggressive Frigidaire distributors. WATERS EQUIPMENT CO., 1215 West Central Ave., Orlando, Florida.

OLD ESTABLISHED York distributor located in North Carolina has opening for experienced commercial refrigeration sales manager to assume complete responsibility for formulating and executing sales activities. Only man thoroughly experienced in refrigeration and air conditioning who has proven executive and sales ability will be considered. The man we want now has responsible sales managerial position and is successful but wants to go further with an organization with unlimited possibilities. Liberal salary plus override on sales volume. Give full details of experience and qualifications. Interview will be arranged. BOX 3035, Air Conditioning & Refrigeration News.

OLD ESTABLISHED York distributor located in North Carolina has opening for experienced refrigeration and air conditioning sales engineer. Must be capable of passing examination state board of engineers and securing license in air conditioning engineering. If not now a resident of N. C. interim license may be arranged pending examination. Write stating experience, qualifications, and salary and commission expected. BOX 3036, Air Conditioning & Refrigeration News.

YOUNG PROGRESSIVE air conditioning firm in Des Moines, Iowa has opening for a graduate engineer with air conditioning experience, capable of designing jobs, estimating costs, supervising installations and purchasing equipment and parts. Very good starting salary with exceptional chances for advancement. Send full details as to age, experience, marital status and references. BOX 3046, Air Conditioning & Refrigeration News.

MANUFACTURERS' REPRESENTATIVES—wanted by nationally known manufacturer of commercial electric water coolers for office, factory, etc. Men must have experience and call on distributors, dealers, water companies, and rental companies. Compensation, commission. State fully background, experience, lines currently handled, territory covered, and references. BOX 3047, Air Conditioning & Refrigeration News.

WANTED SALES manager with following to take complete charge of sales on national distribution basis for well known manufacturer of freezers, ice cream cabinets and other refrigeration equipment. Kindly state previous experience, references, salary expected. All replies held confidential. BOX 3050, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION sales manager—distributor for 14 years handling leading national brand with complete line of commercial refrigeration and

air conditioning equipment and having territory covering states of Arizona, New Mexico, and portion of Texas, has opening for sales manager. Prefer person having experience selling commercial refrigeration and air conditioning equipment and capable of developing aggressive dealer organization. Good opportunity and future with remuneration on the basis of salary plus percentage on sales. Traveling expenses paid and car furnished. Headquarters in El Paso, Texas. Write, giving full details as to qualifications, experience, age, etc. and enclose photo. BOX 3052, Air Conditioning & Refrigeration News.

#### EQUIPMENT FOR SALE

OVERSTOCKED ITEMS—less than manufacturers' costs, new in original crates or cartons including Universal Cooler and Tecumseh condensing units, White-Rodgers controls, Detroit Lubricator expansion valves and solenoid valves, Allen-Bradley relays, Betz and Krack unit coolers, many other items. Write for price list. AMANA SOCIETY, Refrigeration Division, Amana, Iowa.

SEALED UNITS rebuilt and exchanged. Prompt service on Coldsport (sealed & semi-sealed), Chieftain, Gale, Tecumseh, Norge and many others. One year guarantee. Write for price list and shipping instructions. BRIGHTON, 3906 Joy Rd., Detroit 6, Michigan.

WATER COOLERS—Kelvinator—new—ten gallon capacity—\$149.00 each F.O.B. Beam scales—\$22.50 each—quantities of ten or more \$19.50, also F.O.B. GENERAL REFRIGERATOR CO., 856 No. Broad St., Philadelphia, Pa. ST. 7-2240—ST. 7-2241.

SUBJECT TO prior sale: Hermetic Chieftain units— $\frac{1}{4}$  H. P., \$44.50;  $\frac{1}{2}$  H. P., \$48.50. Other well known hermetics:  $\frac{1}{4}$  H. P., fan cooled, \$52.50;  $\frac{1}{2}$  H. P., fan cooled, light duty, \$57.50;  $\frac{1}{2}$  H. P., fan cooled, heavy duty, \$59.50;  $\frac{1}{2}$  H. P., fan cooled, \$69.50. Open units, standard makes:  $\frac{1}{4}$  H. P., \$54.50;  $\frac{1}{2}$  H. P., \$64.50;  $\frac{1}{2}$  H. P., \$84.50. Above prices quoted on lots of six. All open units are 60 cycle, single phase. All above units new, carrying factory warranty. Write for unit list. Penn type 260 Apol low pressure control, \$4.25. Penn type 262 Apol high pressure control, \$4.25. Minneapolis-Honeywell dual pressure control, \$4.50. Detroit Lubricator low pressure control, \$4.25. G. E. blower fan motor with 10" fan, \$4.50. Superior heat exchanger, 13" over-all,  $\frac{3}{4}$ " x  $\frac{1}{2}$ ", \$4.75. Mueller heat exchanger, 14 $\frac{1}{2}$ " over-all,  $\frac{3}{4}$ " x  $\frac{1}{2}$ ", \$5.00. Kramer Trenton panel blower complete,  $\frac{1}{2}$  ton, \$30.00. Superior master drier  $\frac{1}{4}$ " flare x  $\frac{1}{4}$ " x 5 $\frac{1}{2}$ ", 75¢. U. S. "Freon" gauge, 4 $\frac{1}{2}$ " face, 30" vac., 150# or 300#, with corresponding temp. scale with red warning hand and mounting holes, \$4.50. Scientific Instrument Co. dial thermometer, 4 $\frac{1}{2}$ " face, minus 40 to plus 120, 5 ft. tube, \$4.50. 1 set U. S. "Freon" gauge, 2 $\frac{1}{2}$ " face, 100# compound and 300# pressure, temp. scale, recal. and mounting holes, \$3.50. Ranco type KW-412 cold control complete, \$4.00. American Injector oil separator,  $\frac{1}{2}$  ton, \$3.50. Cold plates: 1—30" x 55", 2—30" x 64", 3 to a set, \$35.00. 6—5 lb. cans Davison refrigeration silica gel, \$6.00. 1—5 lb. can Davison refrigeration silica gel, \$1.10. Crouse-Hinds vapor proof refrigerator light, with guard, \$2.50. WALTER W. STARR, 1207 George Street, Chicago 13, Illinois.

FOR SALE, domestic and commercial refrigeration and air conditioning business in southern California. Inventory, plus \$1,000; approximately \$32,000. Good lease. Cheap rent. Complete machine and service shop. Dairy, winery, citrus and farm territory. Profitable all year business. Owner retiring. Terms to right party. BOX 3032, Air Conditioning & Refrigeration News.

7 $\frac{1}{2}$  AND 10 H.P. General Electric CM83T "Freon" condensing units at 10% less than distributors cost, current models, new, crated. Fill your requirements while our stock lasts. BOX 3042, Air Conditioning & Refrigeration News.

#### BUSINESS OPPORTUNITIES

FOR SALE—established commercial refrigeration sales and service business in Lynwood, California, a suburb of Los Angeles. Consists of new stucco building, stock and complete shop equipment. Doing good business. Selling because of illness. LYNWOOD REFRIGERATION CO., 11042 S. Atlantic, Lynwood, Calif.

RESTAURANT, HOTEL and bar supplies department for sale of Wright Refrigeration in San Diego, California. A truly wonderful opportunity for someone experienced in restaurant and hotel supplies business. Get the details, you will really be surprised that such an opportunity is available. WRIGHT REFRIGERATION, 4025 Pacific Highway, San Diego, California.

MIAMI, FLORIDA—a leading refrigeration, air conditioning, television, and appliance sales and service establishment—in same Miami location ten years. Grossed \$150,000 and netted \$20,000 last year. Will sell for \$7,500 to cover truck, equipment, and improvements plus merchandise inventory at cost—about \$8,000. BOX 2992, Air Conditioning & Refrigeration News.

PARTNER WANTED—for established commercial and air conditioning business located in northern New Jersey city. Sales or mechanical experience and business ability just as essential as capital—real opportunity for either a sales engineer or service supervisor. Present owner can handle either end. BOX 3022, Air Conditioning & Refrigeration News.

PARTNER WANTED—for established air conditioning and commercial refrigeration business in New York City. Have valuable dealerships. Sales ability and experience in line more essential than capital. Real opportunity for right party. BOX 3049, Air Conditioning & Refrigeration News.

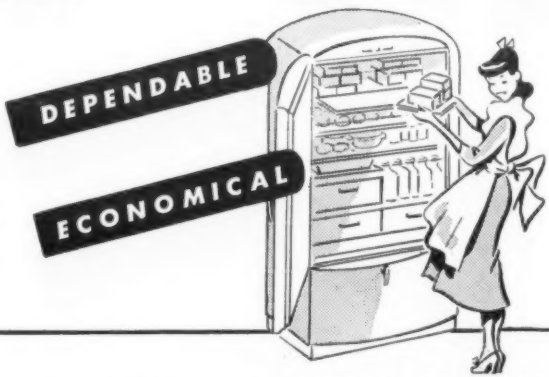
## INSURE CUSTOMER SATISFACTION . . . Rely on Ranco

Satisfied customers, fewer call-backs, and easy-to-work-with refrigeration controls . . . those are the factors that make the refrigeration serviceman's business profitable. Built by specialists in refrigeration, dependably accurate and trouble-free Ranco Controls meet these requirements. More than 15,000,000 Ranco Controls are in use today . . . there's a reason for this overwhelming preference. Ask Ranco to show you why.

**Ranco Inc.**  
COLUMBUS 1, OHIO

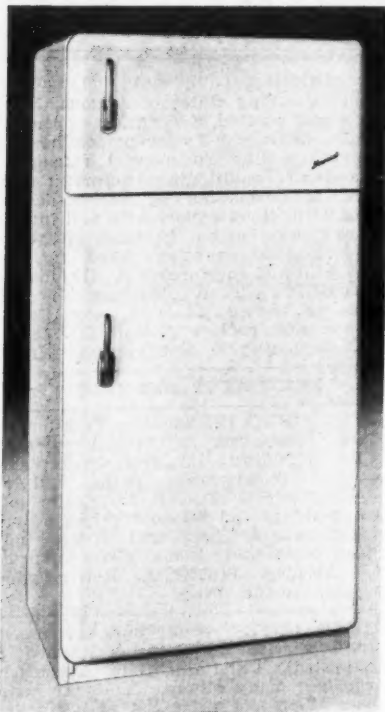


World's Largest Manufacturers of REFRIGERATION CONTROLS





## 2-Temp Howard Model



Designated as Model 1302, this 13-cu. ft. Howard combination model has a separate (top) door opening into the 3-cu. ft. freezer section. Bottom door is for the 10-cu. ft. normal refrigerator space.

## John F. McDaniel Heads NEMA Household Section

CHICAGO—John F. McDaniel, manager of the refrigerator department, Hotpoint, Inc., has been elected chairman of the household refrigeration section of the National Electrical Manufacturers Association for 1949.

McDaniel has been associated with Hotpoint since 1934. Prior to his present company position, he was Pacific northwest district manager.

## NARDA Conference Set for Chicago

(Concluded from Page 1, Column 2) as announced by Cliff Simpson, managing director:

## MONDAY, JAN. 10

9:15 a.m.—Keynoting the meeting, President Herb Names, of Herb Names, Inc., Denver.

10:15 a.m.—“What We Should Expect of NARDA in 1949,” Ted Reina, New York.

11:15 a.m.—“Operating the Association Within the Law”—J. A. Cobey, NARDA attorney.

12:30 p.m.—Luncheon, with speaker.

2:30 p.m.—Panel discussion on “Your 1949 Sales Effort,” covering ideas to strengthen the dealer sales effort—Harry Price, dealer, Price's, Norfolk, Va.; J. A. Barrett, sales manager, Aufford-Kelley Co., Miami, Fla.; Phil Walton, dealer, Phil Walton Appliance Corp., Mt. Vernon, N. Y.; Jake Zweedik, dealer, Grand Rapids, Mich.; Sam Vining, consultant, Westinghouse Electric Corp.; Ed Ellman, Personnel Institute, Chicago.

3:30 p.m.—Panel discussion on “Installation Problems”—John Freeze, dealer, Freeze & Kausch, Milwaukee; Simon Halle, dealer, Halle's, Colorado Springs, Colo.; Arthur Scaife, manager, advertising and sales promotion, General Electric Co.; representatives of National Assn. of Master Plumbers and National Electrical Contractors Assn.

4:30 p.m.—Panel discussion on “Radio-Television”—Art Becker, dealer, Becker's, Evanston, Ill.; Gardner Cole, dealer, The Welch Co., Scituate, Mass.; a representative of a television manufacturer; Jay Faraghan, program director, WGN-TV, Chicago.

8:00 p.m.—Annual dinner with speaker.

## TUESDAY, JAN. 11

9:00 a.m.—Panel discussion on “Manufacturer-Distributor-Dealer Relations,” covering how NARDA should proceed in securing improvements in these relations—John Moffat, dealer, Buford's, Fresno, Calif.; George Arcand, dealer, Arcand's, Hartford, Conn.; H. L. Gilham, dealer, Gilham Appliance Co., Atlanta, Ga.; J. Kyle Holley, dealer, Gen-

## Heating Show, ASHVE Meeting Scheduled--

(Concluded from Page 1, Column 4) cooling equipment,” the exposition management reports.

Admission to the show will be limited to the trade, registration being required but no charge.

For its meeting ASHVE has announced as special luncheon speakers Dr. Henry T. Heald, president of the Illinois Institute of Technology, who will speak on Monday, and Cyril Tasker, director of research, ASHVE, who will be heard at Tuesday's luncheon.

The technical papers to be delivered include the following:

“The Internal Performance of an Induced Draft, Packed Cooling Tower,” by N. W. Snyder, assistant professor of mechanical engineering, University of California, Berkeley.

“Heat Transfer Rates for Refrigerant Boiling in Horizontal Tube Evaporators,” by L. G. Seigel, associate professor of heat-power engineering, Case Institute of Technology, Cleveland; W. L. Bryan, assistant professor, Case, and M. C. Huppert, graduate student Case.

“Are Automatic Air Shutters Justified on a Gas-Fired Conversion Burner?” by W. M. Myler, Jr., chief engineer of the Janitor Division, Surface Combustion Corp., and Harlan W. Nelson, supervisor, Battelle Memorial Institute, both of Columbus, Ohio.

“Performance of Fourteen Masonry Chimneys Under Steady State Conditions,” by Paul R. Achenbach, assistant chief, and Selden D. Cole, mechanical engineer of the heating and air conditioning section, National Bureau of Standards, Washington.

“Performance of Residential Chimneys,” by L. B. Schmitt, research engineer, and R. B. Engdahl, supervisor, of the Battelle Memorial Institute, Columbus.

“Performance of an Electrical System of Radiant Panel Heating with Four States of Insulation,” by R. J. Lorenzi, research engineer, John B. Pierce Laboratory of Hygiene, New Haven, Conn., and J. F. Schreiber, development engineer, Mechanical Goods Division, U. S. Rubber Co., Passaic, N. J.

“Heating a Basementless House

with Radiant Baseboard,” by R. H. Weigel, special research assistant, and W. S. Harris, special research associate professor of mechanical engineering, University of Illinois, Urbana, Illinois.

“Over-all Coefficients for Flat Glass, Determined under Natural Weather Conditions,” by G. V. Parmelee, Chagrin Falls, Ohio, research associate, ASHVE Research Laboratory, Cleveland, and W. W. Aubele, assistant research engineer, ASHVE Laboratory.

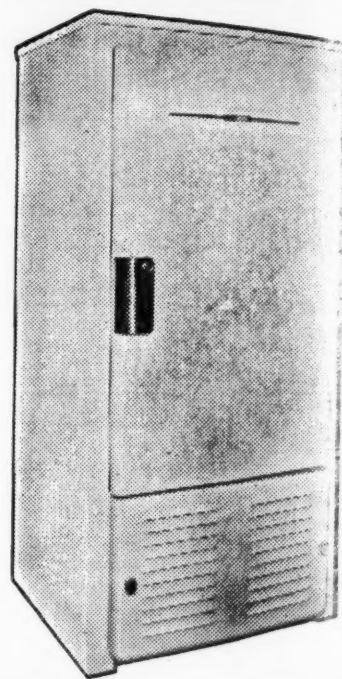
“Turbulence — A Fundamental Frontier in Air Distribution,” by H. B. Nottage, Wickliffe, Ohio, research associate, ASHVE Research Laboratory.

“Adjustment and Balancing of the Air Delivery Through a System of Manifold Air Diffusers,” by G. S. Dauphinee, and Peter Argenti, design engineers, W. B. Connor Engineering Corp., New York City.

“Air Distribution and Draft,” by John Rydberg, director of technology, Royal Institute of Technology, University of Stockholm, Stockholm, Sweden, and Per Norback, research engineer, Royal Institute of Technology, University of Stockholm.

The Illinois Chapter of the Society will be host for the meeting, and C. M. Burnam, Jr., its president, has announced the following Committee on Arrangements: W. A. Kuechenberg, general chairman; J. H. Milliken, vice chairman; M. J. Bamond and H. G. Chapin, banquet; J. S. Kearney, entertainment; G. W. Bornquist, exposition; P. J. Marshall, finance; O. J. Prentice, publicity; M. W. Bishop, reception; and G. V. Zintel, sessions.

## SANITARY'S NEW 6 cu. ft. and 4 cu. ft. Electric Refrigerators are now available.



No. TE62 Illustrated—

23 1/2" w. x 22 3/4" d. x 50 1/2" h.

Also Available—Model TE46—

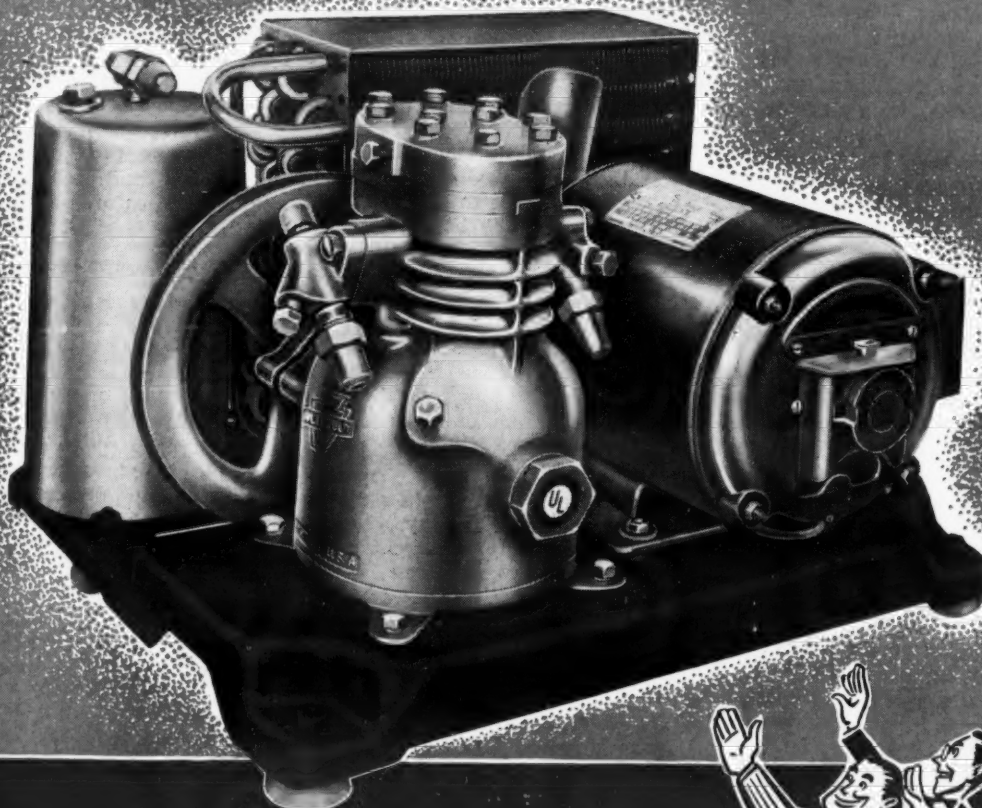
4 Cu. Ft. Size—

23 1/2" w. x 20 3/4" d. x 41" h.

## SANITARY REFRIGERATOR COMPANY

FOND DU LAC, WISCONSIN

ICE REFRIGERATORS FOR MORE THAN 40 YEARS  
QUICFREZ FARM LOCKER PLANTS SINCE 1939



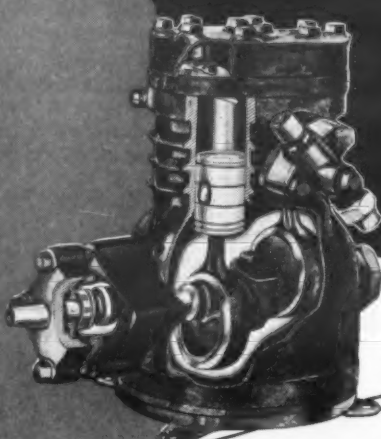
The Lehigh Team Presents

ITS NEW

1/2 H. P.

AIR COOLED

PACKAGE-TYPE UNIT



**RUGGED!**

See details in cut-away

**COMPACT!**

Length—18 3/4" Depth—17 1/2" Height—12 3/4"

**CAPACITY—and how!**

SUCTION TEMP.	0	+10	+20	+30
SUCTION PRESSURE	9.2	14.7	21.1	28.5
BTU	2600	3380	4160	4720

Write for CONDENSED CATALOG and SERVICE PARTS LIST  
Export Department: 39 Broadway, New York 6, N. Y.

Lehigh Manufacturing Co. LANCASTER, PENNA.